

Invitation to Bidders for the
Fabrication & Delivery of
GUIDE SIGNS
CITY OF GATLINBURG

04.17.2018

City of Gatlinburg
Sevier County Transportation Board
Invitation to Bidders for the Fabrication and Delivery of Guide Signs
April 17, 2018

- I. **INVITATION SUMMARY:** The City of Gatlinburg, Tennessee and the Sevier County Highway Department are accepting sealed bids from sign fabrication companies to manufacture and deliver 165 guide signs and other sign accessories as outlined in Appendix A.
- II. **BACKGROUND:** This signing program has been developed to supplement an emergency broadcast when a hazardous event occurs. It will also provide wayfinding information to motorists. The emergency broadcast may refer to these signs as “blue guide signs.” messages on the larger signs at primary intersections in the Chalet Village Area will provide “To Parkway US-441 via...” messages for tourists to help them navigate the road system and find major roads.
- III. **INVITATION TO BIDDERS:** The City of Gatlinburg and the Sevier County Highway Department are accepting sealed bids on the fabrication and delivery of guide signs and accessories outlined in Appendix A. Bids will be received at Gatlinburg City Hall until 2:30PM, May 03, 2018 at which time they will be publicly opened and read aloud. No bid may be withdrawn for thirty (30) days. Bid shall be sealed in an envelope with the bidder’s name, address, the bid opening time & date, and the quotation “Bid on Guide Signs & Accessories” stated plainly on the outside. For questions concerning the Bid Documents, Bidders may contact City of Gatlinburg, Delea Patterson, AP/Purchasing at 865-463-1409 (office), 865-436-6464 (fax), or deleap@gatlinburg.gov (email). Questions about the specifications should be directed to City of

Gatlinburg Public Works Director, Larry Henderson, at 865-430-1370 (office) or lhenderson@gatlinburgtn.gov, and/or Sevier County Road Superintendent, Jonas Smelcer, at 865-453-8093 (office) or jonas_smelcer@yahoo.com . Bid Specifications will also be available on the City of Gatlinburg website at www.gatlinburgtn.gov under the “out for bids” tab. This Bid Tab is located under Gatlinburg Government —> Purchasing. Bid Results are posted in the same area shortly after bid opening. The City/County reserves the right to qualify bidders, to waive any informalities, to reject any and/or all bids, and to accept the bid deemed most favorable and in the best interest of the City/County. It is the policy of the City of Gatlinburg and the Sevier County Highway Department not to discriminate on the basis of race, color, national origin, age, sex, or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services and activities. With regard to all aspects of this contract, contractor certifies and warrants it will comply with this policy.

- IV. **GENERAL PROVISIONS:** Prices quoted shall not include Federal or State taxes, if any are applicable. The successful bidder shall furnish tax exemption forms, if required, with their invoices. The prices quoted are that for which the materials or services will be delivered F.O.B. to the City of Gatlinburg Street Department or Sevier County Highway Department as directed in Appendix B. Any additions, deletions, or variations from the following specifications must be noted. Inspection of the materials or equipment will be made by an agent of the City of Gatlinburg and the Sevier County Highway Department, and if found defective or fails in any way to meet the terms of this agreement, it will be rejected. Rejected materials or equipment will be replaced at the

expense of the bidder. All technical specifications must accompany bid. The City of Gatlinburg and the Sevier County Highway Department reserves the right to purchase additional units or services under the same terms and conditions for a period of one (1) year. The City of Gatlinburg and/or the Sevier County Highway Department reserves the right to extend this agreement for one (1) additional year after the completion of the first year agreement. The City of Gatlinburg and the Sevier County Highway Department reserves the right to defer payment for thirty (30) days after delivery. The City of Gatlinburg and the Sevier County Highway Department also reserves the right to reject any and/or all bids. The bidder agrees to indemnify the City of Gatlinburg and the Sevier County Highway Department from any and all liability; loss or damage the City/County may suffer as a result of claims, demands, costs, or judgments against it arising from any and all work under this agreement. The bidder agrees to notify the City/County, in writing, within thirty (30) days, by registered mail, at the City's address as stated in this agreement, of any claim against the bidder on the obligations indemnified against. It is the policy of the City of Gatlinburg and the Sevier County Highway Department not to discriminate on the basis of race, color, national origin, age, sex, or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services and activities. With regard to all aspects of this contract, contractor certifies and warrants it will comply with this policy.

BID SCHEDULE for the Fabrication & Delivery of Guide Signs

Item #	Item Description	QUANTITY			UNIT	UNIT COST	TOTAL COST
		Sevier County	Gatlinburg	TOTAL			
713-11.01	U-Section Steel Posts	1943	3386	5329	LB		
713-13.02	Flat Sheet Aluminum Signs (0.080" thick)	175	309	484	SF		
713-14.21	Street Name Sign (rigid 0.100" thick)	32	62	94	SF		
713-15.05	Installation of Flat Sheet Sign on Existing Support	61	104	165	EA		
713-15.37	Installation of Message (letter, arrow, shield, etc.)	62	115	177	SF		
GRAND TOTAL							

PAY ITEM NOTES:

ITEM 713-11.01 (LB) — Quantity based on theoretical 15-ft height post and 3.5-ft base length for each new or replacement U6 post location. Coordinate with delivery contact(s) in APPENDIX B to obtain actual lengths of U-Section Type U6 Steel Posts required based on MUTCD, TDOT Standards, and site conditions.

ITEM 713-13.02 (SF) — APPENDIX A shows sign schedule & details for fabrication. A color sample of blue background shall be submitted and approved by the City of Gatlinburg and the Sevier County Highway Department prior to fabrication.

ITEM 713-14.21 (SF) — All Blade Type Signs are 36” x 6” DOUBLE SIDED as shown in APPENDIX A. The chosen fabricator may elect to fabricate all signs with color on entire blade including the 6” x 6” squares on each end. If the signs are fabricated in this manner, the “blank blue vinyl stickers” as called out in Appendix A under Item 713-15.37 may be deducted from quantity and the unit cost submitted at the time of bid. A color sample of blue background shall be submitted and approved by the City of Gatlinburg and the Sevier County Highway Department prior to fabrication.

ITEM 713-15.05 (EACH) — Quantity is set up for HARDWARE ONLY required for the installation of the panels delivered under Item 713-14.21 and Item 713-15.05. Coordinate with delivery contact(s) in APPENDIX B and TDOT Standard Drawing T-S-10 “Standard Mounting Details Flat Sheet Signs” for required hardware needed per location based on site conditions.

ITEM 713-15.37 (SF) — Quantity is for the 6” x 6” VINYL STICKERS for each end of the Blade Type Signs (Item 713-14.21). There will be four (4) stickers required per blade sign (two on each side of the sign). Since the sign installation will be completed by local forces, this quantity is set up so that each delivery location will have a variety of BLANK 6” x 6” stickers, 45° ARROW 6” x 6” stickers, and 90° ARROW 6” x 6” stickers in the same color background as the sign. The stickers can then be placed per field conditions by the installation forces. A sample of the blue background and stickers shall be submitted and approved by the City of Gatlinburg and the Sevier County Highway Department prior to fabrication.

Delea Patterson, AP/Purchasing
City of Gatlinburg
1230 Parkway East
P.O. Box 5
Gatlinburg, TN 37738

RE: Fabrication / Delivery of Guide Signs and Accessories for the City of Gatlinburg & Sevier County

The specifications for the above-mentioned items have been reviewed and the following is offered for fabrication and delivery of the signs:

\$ _____
Gatlinburg Guide Signs Fabrication & Delivery (Total Cost for all Items)

\$ _____
Sevier County Guide Signs Fabrication & Delivery (Total Cost for all Items)

\$ _____
Total Guide Signs Fabrication & Delivery (Total Cost for all Items)

Estimated Days for project completion after bid awarded _____

Any deviations from these specifications are listed below (use back if necessary).

DEVIATIONS YES _____ NO _____

Bidder Contact Information:

_____	_____
<i>signed</i>	<i>date</i>
_____	_____
<i>name (Print)</i>	<i>telephone</i>
_____	_____
<i>company name</i>	<i>fax number</i>
_____	_____
<i>address</i>	<i>cell number</i>
_____	_____
<i>city / state / zip code</i>	<i>email</i>

EACH BIDDER SHALL SUBMIT THIS STATEMENT OF COMPLIANCE WITH THEIR BID.

For Title VI and IX compliance, we ask for voluntary disclosure of the following information:

Gender: Male _____

 Female _____

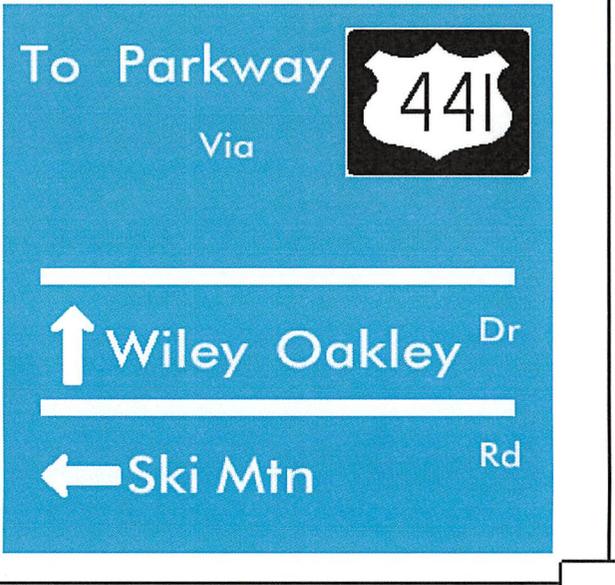
Race: Caucasian _____

 African-American _____

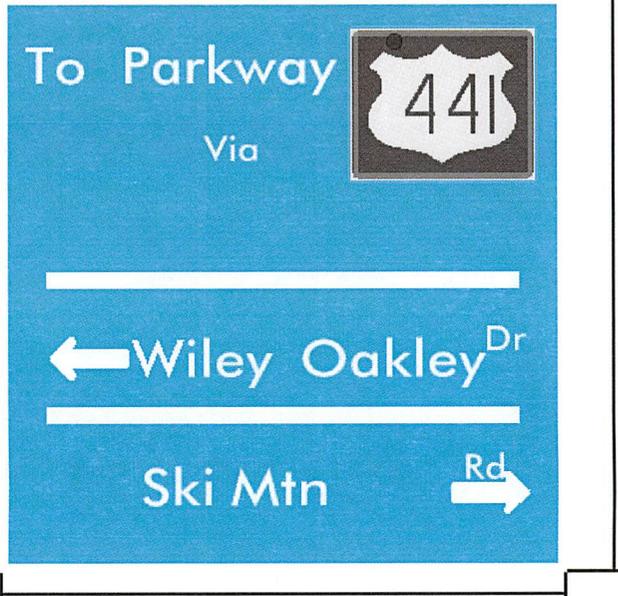
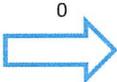
 Other (specify) _____

APPENDIX A
QUANTITIES

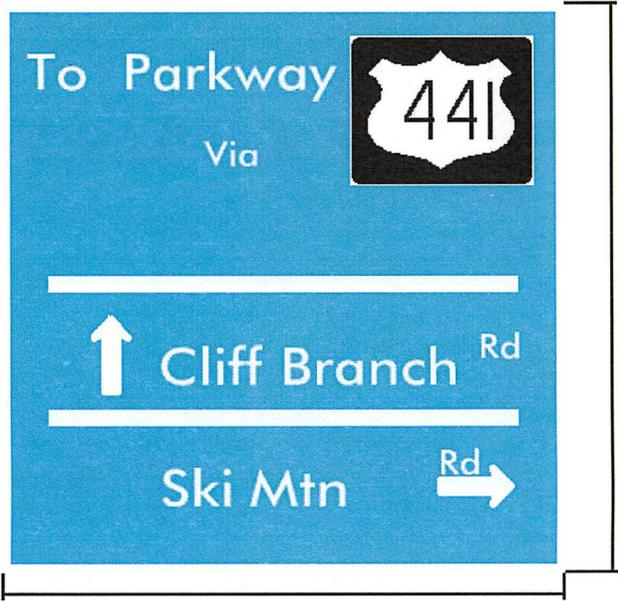
SEVIER COUNTY SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>
PANEL 7		3	1	4	E MOD	<div style="text-align: center; margin-bottom: 10px;">  <p>90</p> </div> <div style="text-align: center;">  <p>180</p> </div>

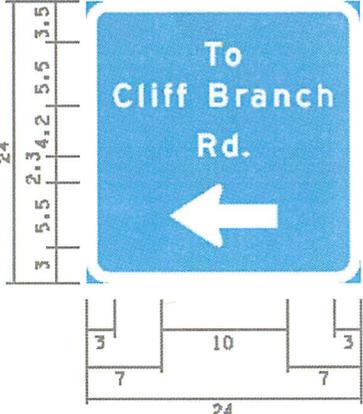
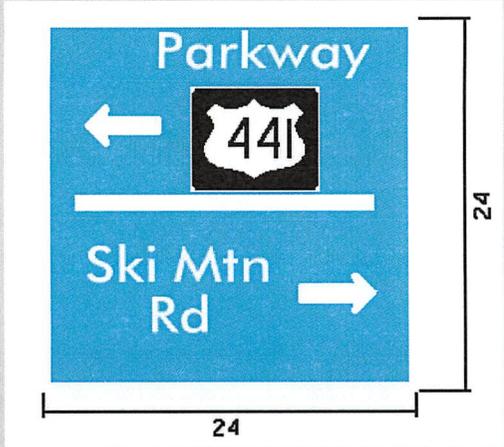
SEVIER COUNTY SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>
PANEL 8		3	1	4	E MOD	
						
						

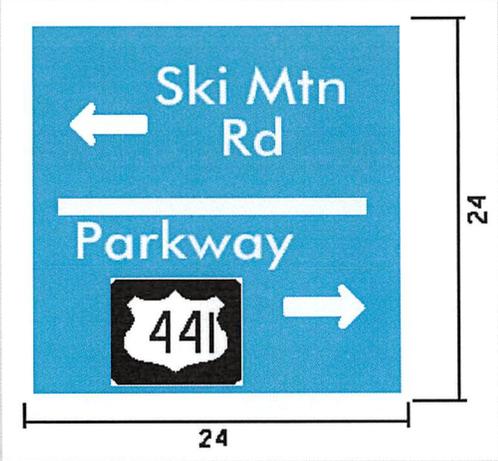
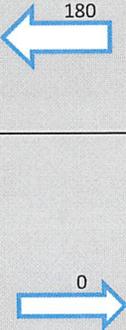
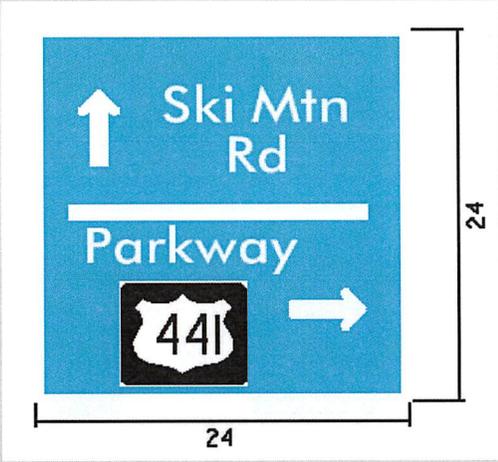
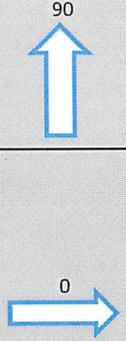
SEVIER COUNTY SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION
PANEL 9	 <p style="text-align: center;">36</p>	3	1	4	E MOD	<div style="text-align: center; margin-bottom: 10px;">  <p>90</p> </div> <div style="text-align: center;">  <p>0</p> </div>

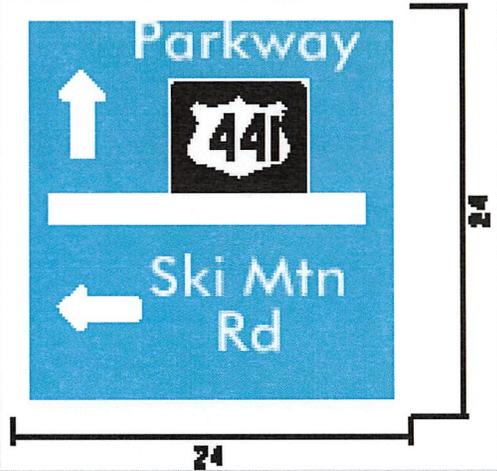
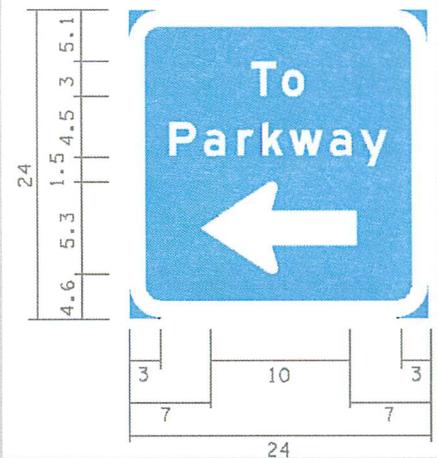
SEVIER COUNTY SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
CBR-L		3	1	2	E MOD	 180°	1
PKWY-L / SMR-R		3	1	4	E MOD	 180  0	9

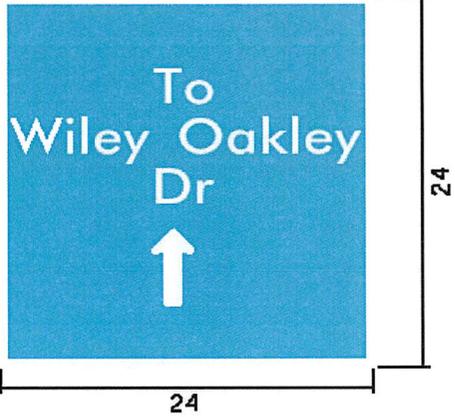
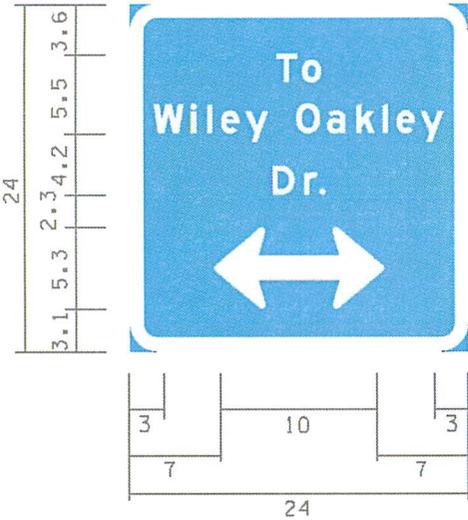
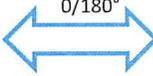
SEVIER COUNTY SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
SMR-L / PKWY-R		3	1	4	E MOD		8
SMR-T/PKWY-R		3	1	4	E MOD		1

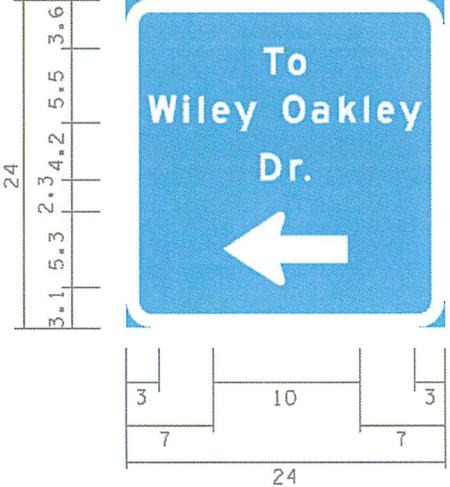
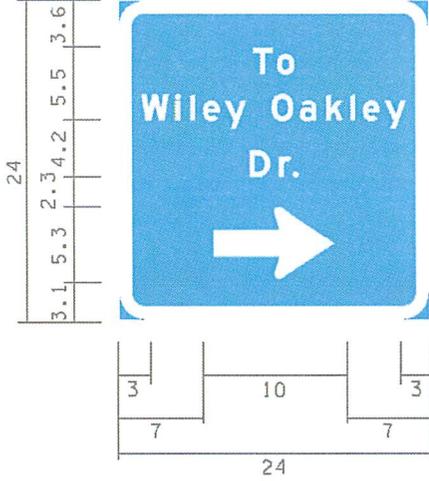
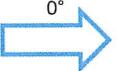
SEVIER COUNTY SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
PKWY-T/SMR-L		3	1	4	E MOD	<div style="text-align: center;">90 ↑</div> <div style="text-align: center;">180 ←</div>	1
PKWY-L		3	1	3	E MOD	<div style="text-align: center;">180° ←</div>	1

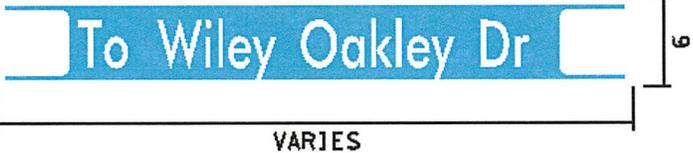
SEVIER COUNTY SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
WOD-T		3	1	4	E MOD	90 	3
WOD-LR		3	1	2	E MOD	0/180° 	1

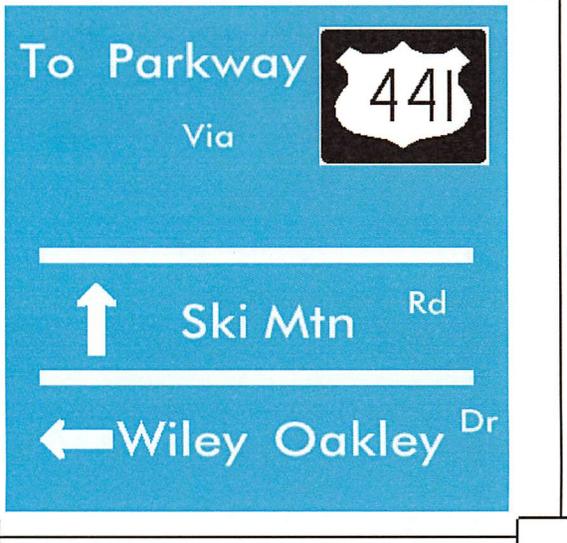
SEVIER COUNTY SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
WOD-L		3	1	2	E MOD		6
WOD-R		3	1	2	E MOD		6

SEVIER COUNTY SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>	<u>QUAN</u>
B **. CBR **	 <p style="text-align: center;">VARIES</p>	3	1	4	HWY B OR HWY C		3
B **. WOD **	 <p style="text-align: center;">VARIES</p>	3	1	4	HWY B OR HWY C		18

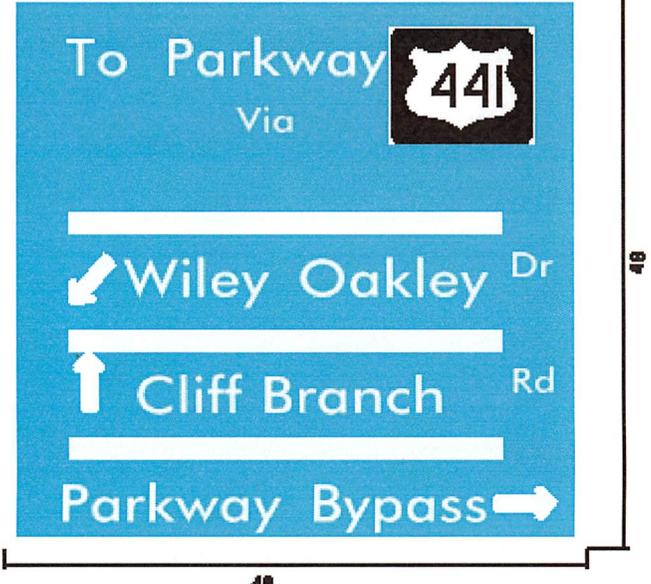
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION
PANEL 1		3	1	2	E MOD	<div style="text-align: center;"> <p>90</p>  </div> <div style="text-align: center; margin-top: 20px;"> <p>180</p>  </div>

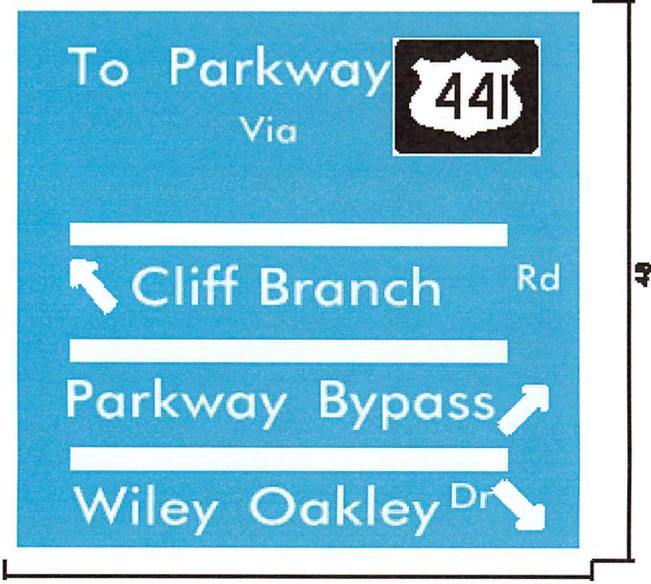
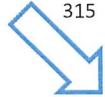
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION
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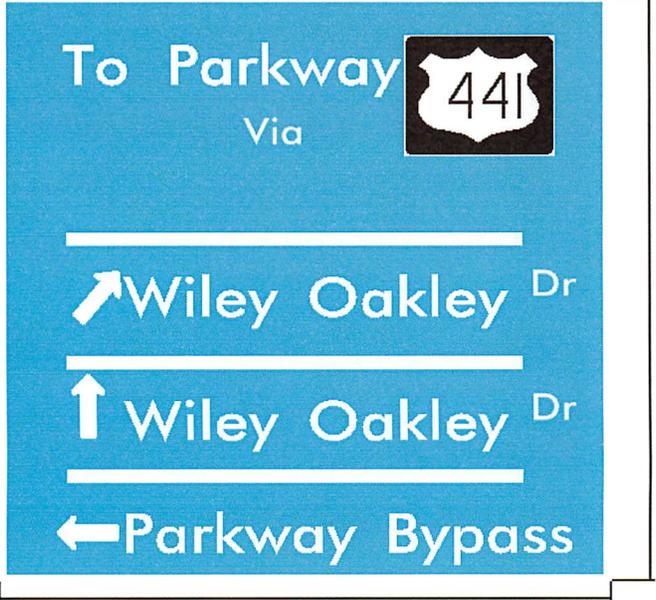
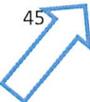
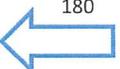
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION
PANEL 3		3	1	4	E MOD	<div style="text-align: center; margin-bottom: 10px;">  <p>270</p> </div> <div style="text-align: center; margin-bottom: 10px;">  <p>90</p> </div> <div style="text-align: center;">  <p>0</p> </div>

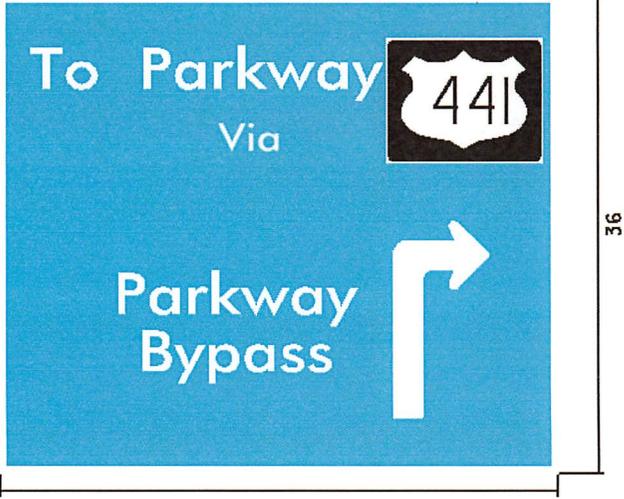
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION
PANEL 4		3	1	4	E MOD	<div style="text-align: center; margin-bottom: 10px;">  135 </div> <div style="text-align: center; margin-bottom: 10px;">  45 </div> <div style="text-align: center;">  315 </div>

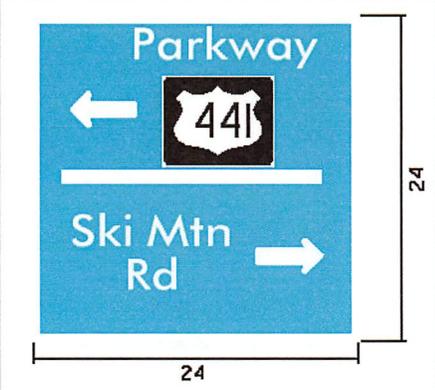
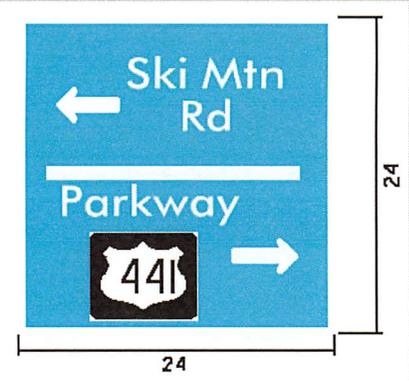
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION
<p>PANEL 5</p>		<p style="text-align: center;">3</p>	<p style="text-align: center;">1</p>	<p style="text-align: center;">4</p>	<p style="text-align: center;">E MOD</p>	<div style="text-align: center; margin-bottom: 10px;">  <p>45</p> </div> <div style="text-align: center; margin-bottom: 10px;">  <p>90</p> </div> <div style="text-align: center;">  <p>180</p> </div>

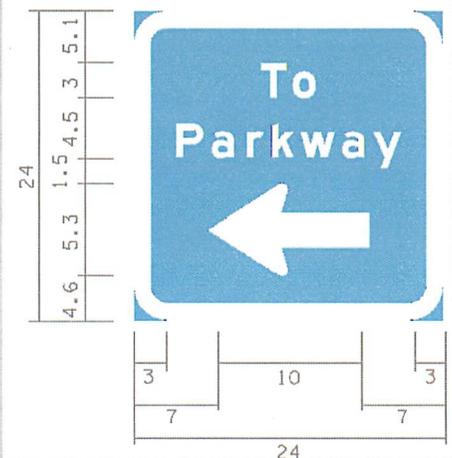
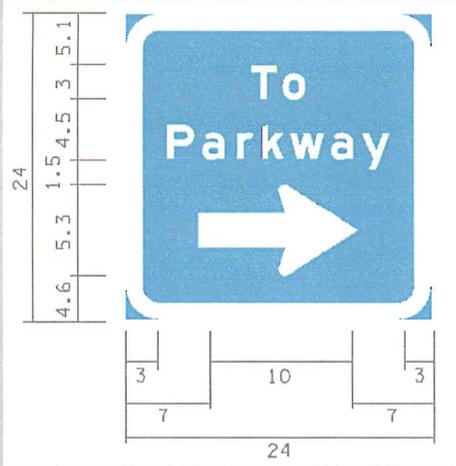
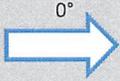
GATLINBURG SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>
PANEL 6	 <p style="text-align: center;">42</p> <p style="text-align: right;">36</p>	3	1	4	E MOD	

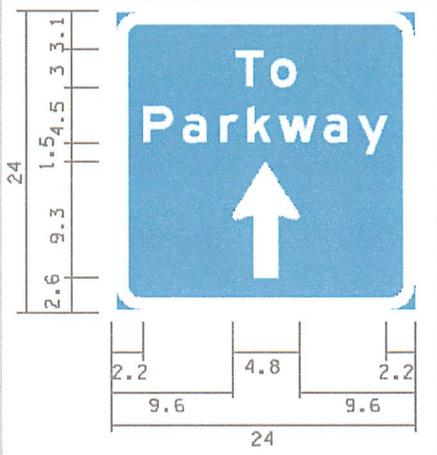
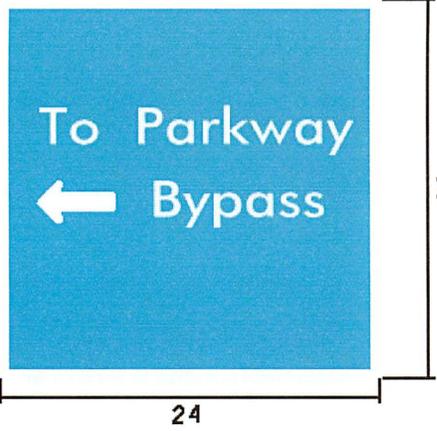
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
PKWY-L / SMR-R		3	1	4	E MOD	<div style="text-align: center;">  180 <hr/>  0 </div>	5
SMR-L / PKWY-R		3	1	4	E MOD	<div style="text-align: center;">  180 <hr/>  0 </div>	1

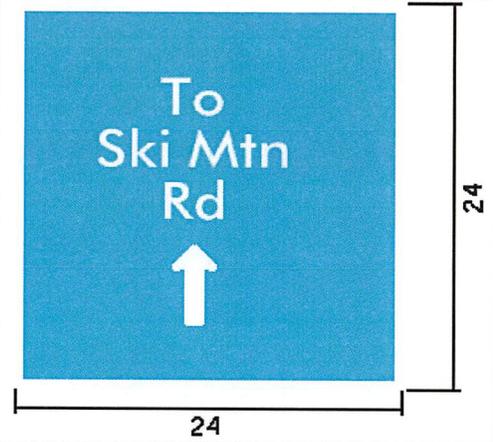
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
PKWY-L		3	1	3	E MOD		9
PKWY-R		3	1	3	E MOD		10

GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
PKWY-T						90° 	3
PBP-L		3	1	4	E MOD	180° 	1

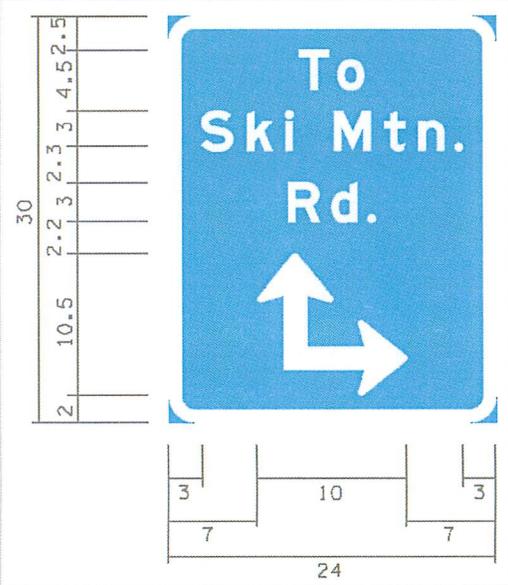
GATLINBURG SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>	<u>QUAN</u>
SMR-T		3	1	4	E MOD	90 	2

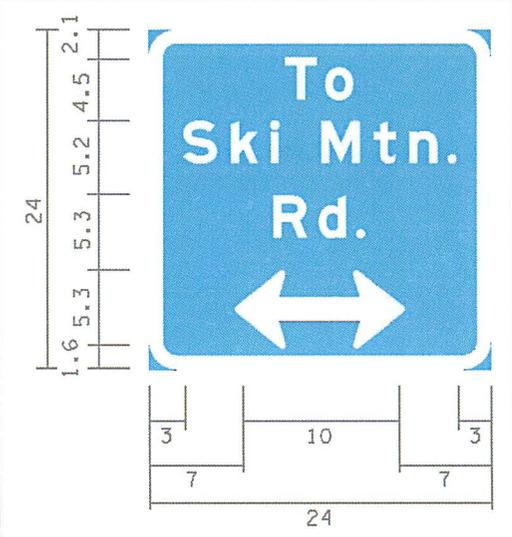
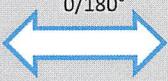
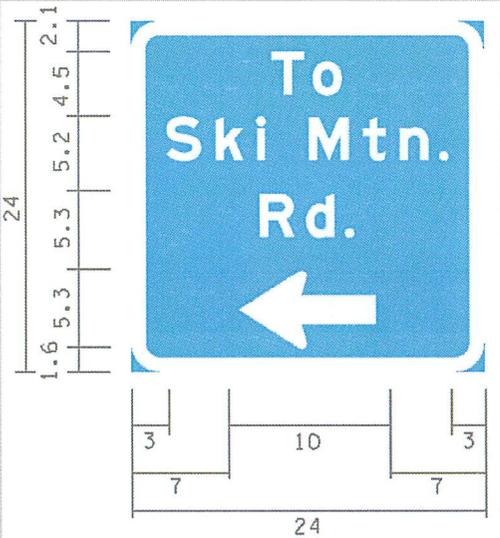
GATLINBURG SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>	<u>QUAN</u>
SMR-LT		3	1	3	E MOD	90/180° 	3

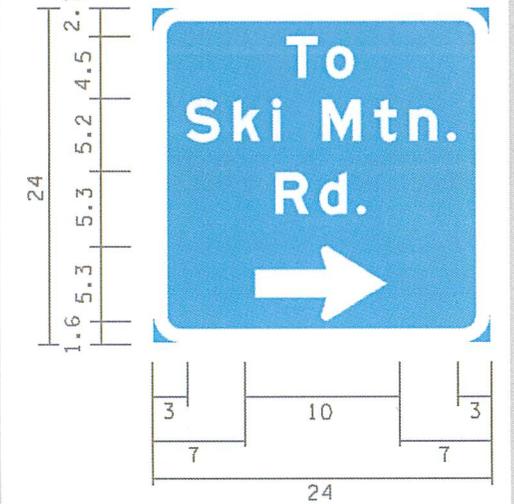
GATLINBURG SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>	<u>QUAN</u>
SMR-TR		3	1	3	E MOD	0/90° 	2

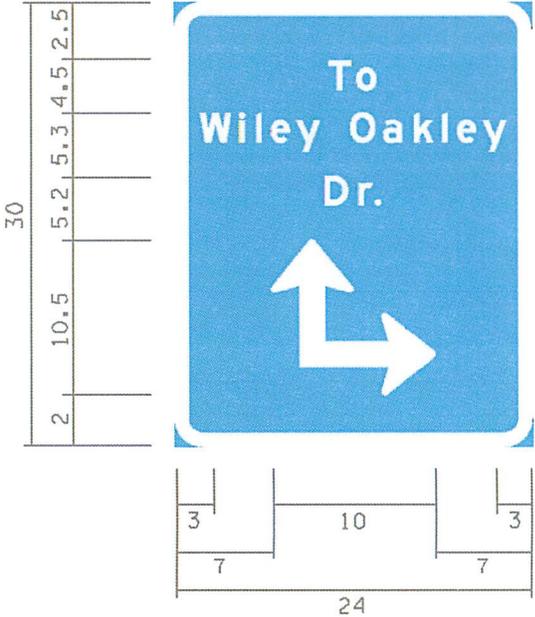
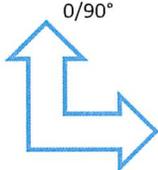
GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
SMR-LR		3	1	3	E MOD	 0/180°	7
SMR-L		3	1	3	E MOD	 180°	5

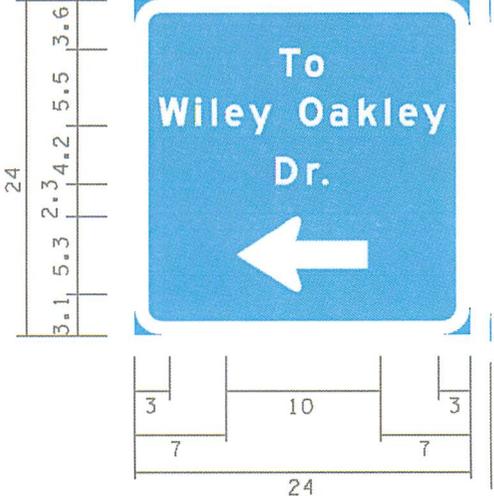
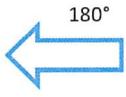
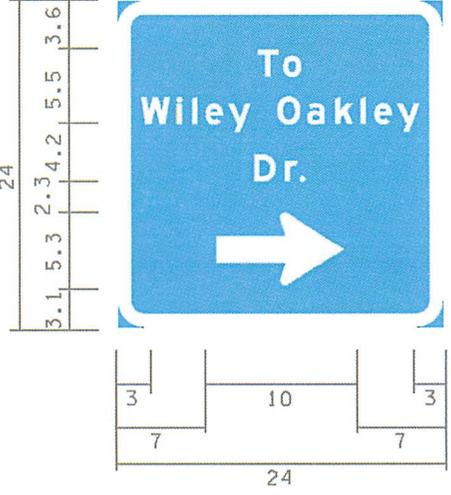
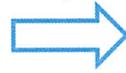
GATLINBURG SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>	<u>QUAN</u>
SMR-R		3	1	3	E MOD	0 	5

GATLINBURG SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>	<u>QUAN</u>
WOD-TR		3	1	2	E MOD		1

GATLINBURG SIGN SCHEDULE

Sign Name	Sign Details	RADIUS (inches)	BORDER WIDTH (inches)	FONT HT. (inches)	FONT	ARROW ROTATION	QUAN
WOD-L		3	1	2	E MOD		1
WOD-R		3	1	2	E MOD		2

GATLINBURG SIGN SCHEDULE

<u>Sign Name</u>	<u>Sign Details</u>	<u>RADIUS (inches)</u>	<u>BORDER WIDTH (inches)</u>	<u>FONT HT. (inches)</u>	<u>FONT</u>	<u>ARROW ROTATION</u>	<u>QUAN</u>
B **. PKWY **	 <p style="text-align: center;">VARIES</p>	3	1	4	HWY B OR HWY C		10
B **. SMR **	 <p style="text-align: center;">VARIES</p>	3	1	4	HWY B OR HWY C		31

sign ID	appendix A sheet #	length (in)	width (in)	area (in2)	area (SF)	# of signs	sign material	support type	post calc. (lb/LF)	support length	existing post (yes or no)	location destination (sevier county or gatlinburg)	713-11.01 (LB) U-Section Steel Posts		713-13.02 (SF) flat sheet aluminum signs (0.080" thick)		713-14.21 (SF) street name sign (rigid 0.100" thick) [double sided signs with blanks on ends]		713-15.05 (EA) installation of flat sheet sign on existing support [hardware ONLY]		713-15.37 (SF) installation of message (letter, arrow, shield) [vinyl stickers ONLY]				
													sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg			
panel 7	01	36.00	36.00	1,296.00	9.00	1	0.080"	U6	3.00	15.00	no	sevier county	45.00												
									3.00	15.00	no	sevier county	45.00			9.00		0.00			1.00			0.00	
									3.00	15.00	no	sevier county	45.00												
panel 8	02	36.00	36.00	1,296.00	9.00	1	0.080"	U6	3.00	15.00	no	sevier county	45.00			9.00		0.00			1.00			0.00	
									3.00	15.00	no	sevier county	45.00												
									3.00	15.00	no	sevier county	45.00												
panel 9	03	36.00	36.00	1,296.00	9.00	1	0.080"	U6	3.00	15.00	no	sevier county	45.00			9.00		0.00			1.00			0.00	
									3.00	15.00	no	sevier county	45.00												
CBR-L	04	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	sevier county	0.00			4.00		0.00			1.00			0.00	
PKWY-L SMR-R	04	24.00	24.00	576.00	4.00	9	0.080"	existing post			yes	sevier county	0.00			36.00		0.00			9.00			0.00	
SMR-L PKWY-R	05	24.00	24.00	576.00	4.00	8	0.080"	existing post			yes	sevier county	0.00			32.00		0.00			8.00			0.00	
SMR-T PKWY-R	05	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	sevier county	0.00			4.00		0.00			1.00			0.00	
PKWY-T SMR-L	06	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	sevier county	0.00			4.00		0.00			1.00			0.00	
PKWY-L	06	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	sevier county	0.00			4.00		0.00			1.00			0.00	
WOD-T	07	24.00	24.00	576.00	4.00	3	0.080"	existing post			yes	sevier county	0.00			12.00		0.00			3.00			0.00	
WOD-LR	07	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	sevier county	0.00			4.00		0.00			1.00			0.00	
WOD-L	08	24.00	24.00	576.00	4.00	6	0.080"	existing post			yes	sevier county	0.00			24.00		0.00			6.00			0.00	
WOD-R	08	24.00	24.00	576.00	4.00	6	0.080"	existing post			yes	sevier county	0.00			24.00		0.00			6.00			0.00	
B *CBR*	09	36.00	6.00	216.00	1.50	3	0.100"	existing post			yes	sevier county	0.00			0.00		4.50			3.00			0.00	
B *WOD*	09	36.00	6.00	216.00	1.50	18	0.100"	existing post			yes	sevier county	0.00			0.00		27.00			18.00			0.00	
blue blank	09	6.00	6.00	36.00	0.25	45	sticker	existing post			yes	sevier county	0.00			0.00		0.00			0.00				
45" white arrow on blue background	09	6.00	6.00	36.00	0.25	100	sticker	existing post			yes	sevier county	0.00			0.00		0.00			0.00			61.25	
90" white arrow on blue background	09	6.00	6.00	36.00	0.25	100	sticker	existing post			yes	sevier county	0.00			0.00		0.00			0.00				
U6 sign base at 3.5-ft for each location = (6+29) = 35 EACH						35	n/a	U6	3.00	3.50	no	sevier county	367.50			0.00		0.00			0.00			0.00	
U6 sign posts at 50% of existing sign locations = (37+21)(0.50) = 29 EA						29	n/a	U6	3.00	15.00	no	sevier county	1,305.00			0.00		0.00				0.00			0.00
panel 1	10	36.00	36.00	1,296.00	9.00	1	0.080"	U6	3.00	15.00	no	gatlinburg	45.00								1.00			0.00	
									3.00	15.00	no	gatlinburg	45.00			9.00		0.00							
panel 2	11	36.00	28.00	1,008.00	7.00	1	0.080"	U6	3.00	15.00	no	gatlinburg	45.00			7.00		0.00			1.00			0.00	
									3.00	15.00	no	gatlinburg	45.00												
panel 3	12	48.00	48.00	2,304.00	16.00	1	0.080"	U6	3.00	15.00	no	gatlinburg	45.00			16.00		0.00			1.00			0.00	
									3.00	15.00	no	gatlinburg	45.00												
panel 4	13	48.00	48.00	2,304.00	16.00	1	0.080"	U6	3.00	15.00	no	gatlinburg	45.00			16.00		0.00			1.00			0.00	
									3.00	15.00	no	gatlinburg	45.00												
panel 5	14	48.00	48.00	2,304.00	16.00	1	0.080"	U6	3.00	15.00	no	gatlinburg	45.00			16.00		0.00			1.00			0.00	
									3.00	15.00	no	gatlinburg	45.00												
panel 6	15	42.00	36.00	1,512.00	10.50	1	0.080"	U6	3.00	15.00	no	gatlinburg	45.00			10.50		0.00			1.00			0.00	
									3.00	15.00	no	gatlinburg	45.00												
PKWY-L SMR-R	16	24.00	24.00	576.00	4.00	5	0.080"	existing post			yes	gatlinburg	0.00			20.00		0.00			5.00			0.00	
SMR-L PKWY-R	16	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	gatlinburg	0.00			4.00		0.00			1.00			0.00	
PKWY-L	17	24.00	24.00	576.00	4.00	9	0.080"	existing post			yes	gatlinburg	0.00			36.00		0.00			9.00			0.00	
PKWY-R	17	24.00	24.00	576.00	4.00	10	0.080"	existing post			yes	gatlinburg	0.00			40.00		0.00			10.00			0.00	
PKWY-T	18	24.00	24.00	576.00	4.00	3	0.080"	existing post			yes	gatlinburg	0.00			12.00		0.00			3.00			0.00	
PBP-L	18	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	gatlinburg	0.00			4.00		0.00			1.00			0.00	
SMR-T	19	24.00	24.00	576.00	4.00	2	0.080"	existing post			yes	gatlinburg	0.00			8.00		0.00			2.00			0.00	
SMR-LT	20	30.00	24.00	720.00	5.00	3	0.080"	existing post			yes	gatlinburg	0.00			15.00		0.00			3.00			0.00	
SMR-TR	21	30.00	24.00	720.00	5.00	2	0.080"	existing post			yes	gatlinburg	0.00			10.00		0.00			2.00			0.00	
SMR-LR	22	24.00	24.00	576.00	4.00	7	0.080"	existing post			yes	gatlinburg	0.00			28.00		0.00			7.00			0.00	

sign ID	appendix A sheet #	length (in)	width (in)	area (in2)	area (SF)	# of signs	sign material	support type	post calc. (lb/LF)	support length	existing post (yes or no)	location destination (sevier county or gatlinburg)	713-11.01 (LB) U-Section Steel Posts		713-13.02 (SF) flat sheet aluminum signs (0.080" thick)		713-14.21 (SF) street name sign (rigid 0.100" thick) [double sided signs with blanks on ends]		713-15.05 (EA) installation of flat sheet sign on existing support [hardware ONLY]		713-15.37 (SF) installation of message (letter, arrow, shield) [vinyl stickers ONLY]		
													sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	
SMR-L	22	24.00	24.00	576.00	4.00	5	0.080"	existing post			yes	gatlinburg		0.00		20.00		0.00		5.00		0.00	
SMR-R	23	24.00	24.00	576.00	4.00	5	0.080"	existing post			yes	gatlinburg		0.00		20.00		0.00		5.00		0.00	
WOD-TR	24	30.00	24.00	720.00	5.00	1	0.080"	existing post			yes	gatlinburg		0.00		5.00		0.00		1.00		0.00	
WOD-L	25	24.00	24.00	576.00	4.00	1	0.080"	existing post			yes	gatlinburg		0.00		4.00		0.00		1.00		0.00	
WOD-R	25	24.00	24.00	576.00	4.00	2	0.080"	existing post			yes	gatlinburg		0.00		8.00		0.00		2.00		0.00	
B *PKVY*	26	36.00	6.00	216.00	1.50	10	0.100"	existing post			yes	gatlinburg		0.00		0.00		15.00		10.00		0.00	
B *SMR*	26	36.00	6.00	216.00	1.50	31	0.100"	existing post			yes	gatlinburg		0.00		0.00		46.50		31.00		0.00	
blue blank	26	6.00	6.00	36.00	0.25	100	sticker	existing post			yes	gatlinburg		0.00		0.00		0.00		0.00		0.00	
45° white arrow on blue background	26	6.00	6.00	36.00	0.25	180	sticker	existing post			yes	gatlinburg		0.00		0.00		0.00		0.00		115.00	
90° white arrow on blue background	26	6.00	6.00	36.00	0.25	180	sticker	existing post			yes	gatlinburg		0.00		0.00		0.00		0.00		115.00	
U6 sign base at 3.5-ft for each location = (12 + 49) = 61 EACH						61	n/a	U6	3.00	3.50	no	gatlinburg		640.50		0.00		0.00		0.00		0.00	
U6 sign posts at 50% of existing sign locations = (57+41)(0.50) = 49 EA						49	n/a	U6	3.00	15.00	no	gatlinburg		2,205.00		0.00		0.00		0.00		0.00	

1,942.50		3,385.50		175.00		308.50		31.50		61.50		61.00		104.00		61.25		115.00	
sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg	sevier county	gatlinburg
713-11.01 (LB) U-Section Steel Posts		713-13.02 (SF) flat sheet aluminum signs (0.080" thick)		713-14.21 (SF) street name sign (rigid 0.100" thick) [double sided signs with blanks on ends]		713-15.05 (EA) installation of flat sheet sign on existing support [hardware ONLY]		713-15.37 (SF) installation of message (letter, arrow, shield) [vinyl stickers ONLY]											
5,328.00		483.50		93.00		165.00		176.25											
LB		SF		SF		EACH		SF											

APPENDIX B
DELIVERY
LOCATIONS

APPENDIX B

DELIVERY LOCATIONS

**for Bid Items including Sign Panels, Posts,
Stickers for Blade Signs, & Other Accessories**

*[NOTE: see Appendix A & Bid Schedule for breakdown of Pay
Items to be delivered to each location]*

CITY OF GATLINBURG

948 Newman Court

Gatlinburg, TN 37738

contact: LARRY HENDERSON

phone: (865) 430-1370

SEVIER COUNTY HIGHWAY

DEPARTMENT

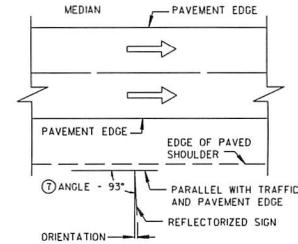
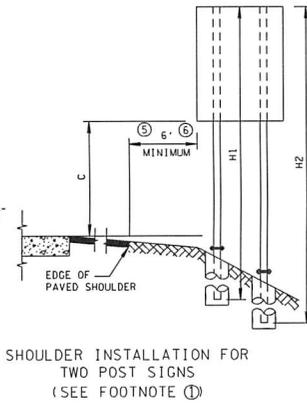
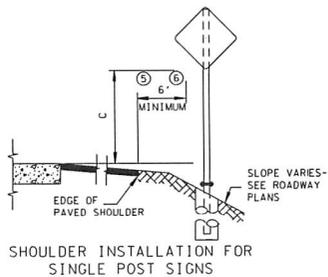
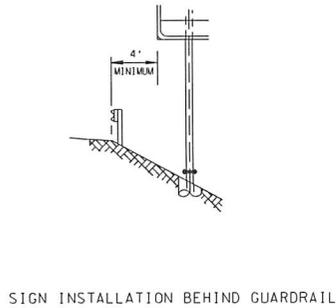
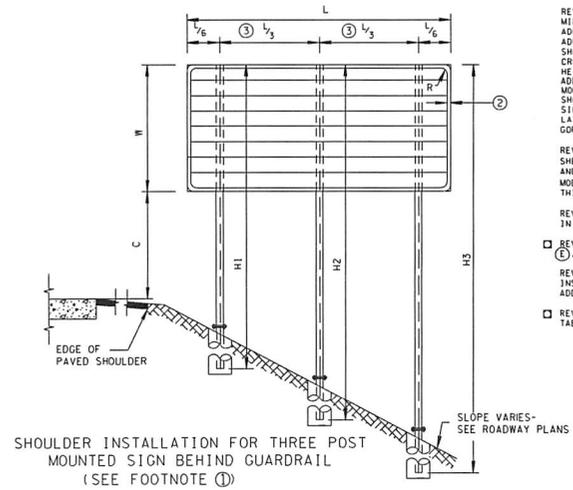
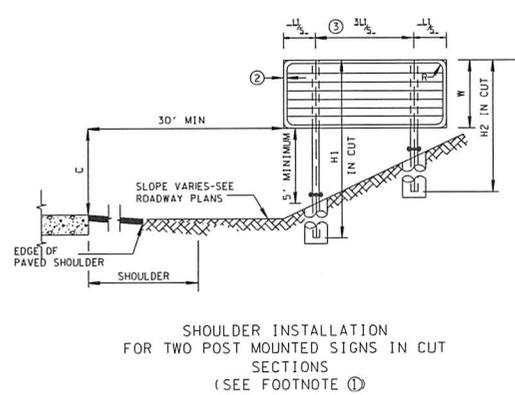
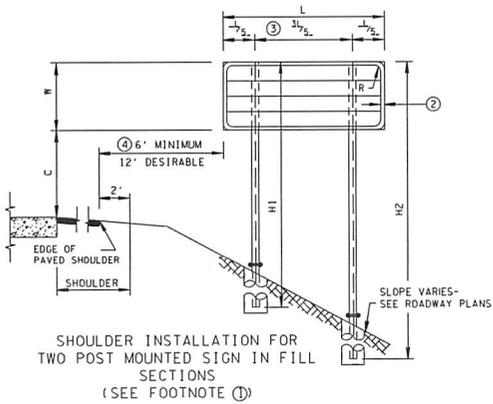
139 County Garage Road

Sevierville, TN 37876

contact: JONAS SMELCER

phone: (865) 453-8093

APPENDIX C
STANDARD
DRAWINGS



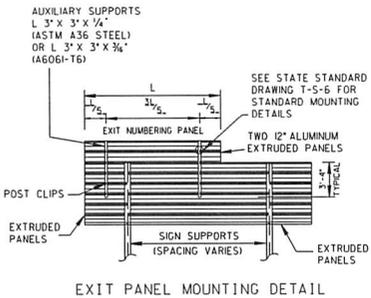
- REV. 1-30-85; REDREW SHEET. CHANGED MINIMUM OFFSET ON ALL SIGNS AND NOTE. ADDED EXIT PANEL MOUNTING DETAIL. ADDITIONAL PANEL MOUNTING DETAIL. AND SHOULDER INSTALLATION RAMPS AND CROSSROADS. CHANGED MINIMUM MOUNTING HEIGHT. ELIMINATED SECONDARY SIGN AND ADDED BREAKAWAY TO THREE POST MOUNTED SIGN. ADDED GUARDRAIL TO SHOULDER INSTALLATION TWO POST MOUNTED SIGN. ADDED FILL SLOPE DETAIL TO 30' LATERAL CLEARANCE. ELIMINATED TYPICAL GORE SIGN LOCATION.
- REV. 12-7-90; REDREW AND REORGANIZED SHEET. NUMBERED ALL GENERAL NOTES AND FOOTNOTES. ADDED FOOTNOTE NO. ①. MODIFIED EXIT PANEL MOUNTING DETAILS ON THIS SHEET.
- REV. 8-16-91; CHANGED MINIMUM DIMENSION IN FOOTNOTE NO. ③ FROM 7'-10" TO 7'-6".
- ④ REV. 5-27-03; CORRECTED GENERAL NOTE ①.
- ⑤ REV. 11-1-11; REVISED SHOULDER INSTALLATION HEIGHT FOR FREEWAYS AND ADDED GENERAL NOTE ⑥.
- ⑥ REV. 6-10-14; ADDED CLEAR HEIGHT TABS. MODIFIED DETAILS AND NOTES.

NOTE: SIGNS SHALL NORMALLY BE ERRECTED SO THAT THE SIGN FACE IS TRULY VERTICAL AND AT 93° AWAY FROM THE CENTER OF THE LANE WHICH THE SIGN SERVES AND THE DIRECTION OF TRAVEL. WHERE LANES DIVIDE OR ARE ON CURVES, SIGN FACES SHALL BE ORIENTED SO AS TO BE MOST EFFECTIVE BOTH DAY AND NIGHT AND TO AVOID THE POSSIBILITY OF SPECULAR REFLECTION.

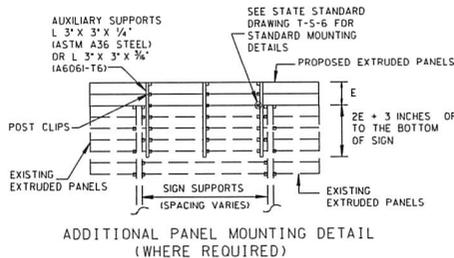
ANGLE OF REFLECTORIZED SIGN TO APPROACHING TRAFFIC DETAIL (SEE FOOTNOTE ⑦)

LEGEND

W-HHEIGHT OF SIGN FACE
L-LENGTH OF SIGN FACE
R-RADIUS OF BORDER
E-HHEIGHT OF AUXILIARY EXTRUDED PANELS
H-HHEIGHT OF SIGN SUPPORT
C-CLEAR HEIGHT TO BOTTOM OF SIGN



ITEM NO. 713-17.02, INSTALL AUXILIARY SUPPORT FOR EXIT NUMBER PANEL PER EACH INCLUDES THE COST OF AUXILIARY SUPPORTS AND POST CLIPS.



ITEM NO. 713-17.03, INSTALL AUXILIARY SUPPORT ON EXISTING SIGN PER EACH INCLUDES THE COST OF AUXILIARY SUPPORTS AND POST CLIPS.

GENERAL NOTES

- ① THE LAYOUTS SHOWN ON THIS PAGE ARE TYPICAL FOR ALL SIGNS ERRECTED ON THE FREEWAY SYSTEM AND WITHIN THEIR RESPECTIVE INTERCHANGE AREAS, UNLESS OTHERWISE SPECIFIED IN THE ROADWAY PLANS FOR A SPECIFIC PROJECT.
- ② ALL SIGNS SHALL BE ERRECTED SO THAT THE INSIDE EDGE OF THE PROPOSED SIGN OR ITS ASSEMBLY IS A MINIMUM OF SIX FEET BEYOND THE EDGE OF PAVED SHOULDER OR TWO FEET FROM THE BACK FACE OF THE CURB.
- ③ ALL DIRECTIONAL SIGNS ON THE FREEWAY SYSTEM SHALL BE ERRECTED SO THAT BOTTOM OF THE SIGN ASSEMBLY IS SEVEN FEET ABOVE THE EDGE OF PAVED SHOULDER.
- ④ WHEN AN AUXILIARY SIGN IS MOUNTED BELOW THE MAJOR SIGN, THE MAJOR SIGN OR ITS ASSEMBLY SHALL BE ERRECTED AT LEAST EIGHT FEET ABOVE THE EDGE OF PAVED SHOULDER AND THE AUXILIARY SIGN SHALL BE ERRECTED AT LEAST FIVE FEET ABOVE THE EDGE OF PAVED SHOULDER.
- ⑤ ALL SIGNS MOUNTED IN URBAN AREAS OR OTHERWISE MOUNTED ADJACENT TO A SIDEWALK SHALL BE A MINIMUM 7 FEET OF CLEAR HEIGHT IN RURAL AREAS WITHOUT SIDEWALK THE MINIMUM CLEAR HEIGHT MAY BE 5 FEET.
- ⑥ THE CLEAR HEIGHT SHALL BE MEASURED VERTICAL TO THE TOP OF THE SIDEWALK OR, IN THE ABSENCE OF SIDEWALK, MINIMUM OF FIVE FEET ABOVE THE EDGE OF PAVED SHOULDER.
- ⑦ SEE SECTIONS 2A.18 THROUGH 2A.23 OF THE MUTED FOR ADDITIONAL INFORMATION.
- ⑧ SIGN SUPPORTS INSTALLED WITHIN THE CLEAR ZONE SHALL BE BREAKAWAY, HAVE A BREAKAWAY SIGN HARDWARE (FEET ONLY) OR BE SHIELDED BY BARRIER.

FOOTNOTES

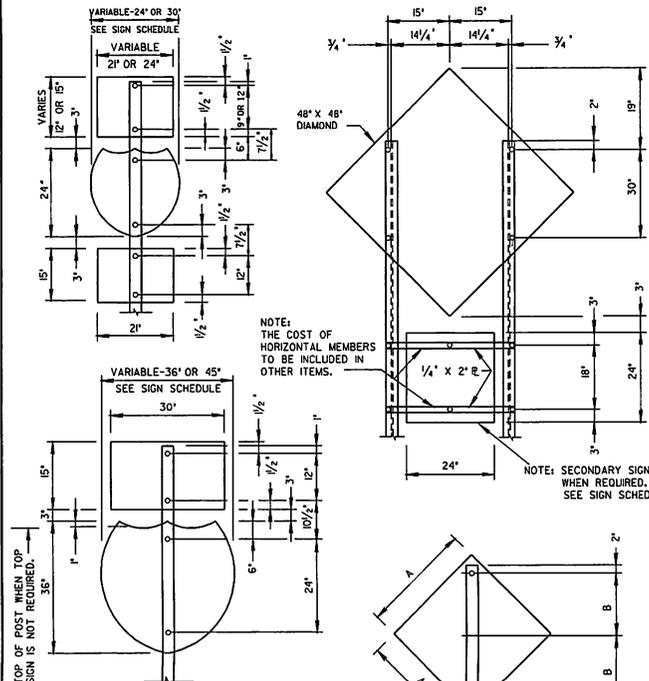
- ① SEE SIGN SCHEDULE SHEET IN THE PLANS FOR DIMENSIONS E, L, W, H1, H2, H3, R, AND W.
- ② SEE SIGN SCHEDULE SHEET FOR WIDTH OF BORDER.
- ③ THIS DIMENSION SHALL BE A MINIMUM OF SEVEN FEET SIX INCHES WHEN USING POST SIZE OF W6 X 15 OR LARGER.
- ④ MIN DISTANCE OF FOUR FEET IS TO BE USED BEHIND GUARDRAIL.
- ⑤ DISTANCE OF TWENTY FEET IS DESIRABLE ON FREEWAYS AND EXPRESSWAYS.
- ⑥ DISTANCE OF TWO FEET MINIMUM IS TO BE USED ON URBAN STREETS WITH CURB AND GUTTER SECTIONS.
- ⑦ ANGLE OF REFLECTORIZED SIGN TO APPROACHING TRAFFIC DETAIL DOES NOT APPLY WHEN PROPOSED SIGNS ARE SET BACK THIRTY FEET OR MORE. SIGNS ON TANGENTS THAT ARE SET BACK THIRTY FEET OR MORE FROM THE EDGE OF PAVEMENT SHALL BE ORIENTED AT NINETY DEGREES.
- ⑧ IF SIGN IS PLACED ADJACENT TO SIDEWALK USE URBAN CLEAR HEIGHT.

① MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

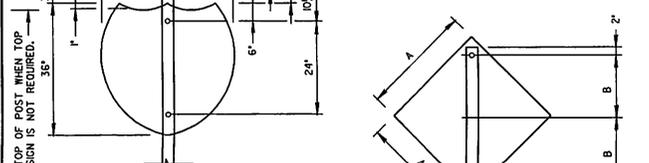
STANDARD
LAYOUT
GROUND MOUNTED
SIGNS

1-19-96 T-S-9

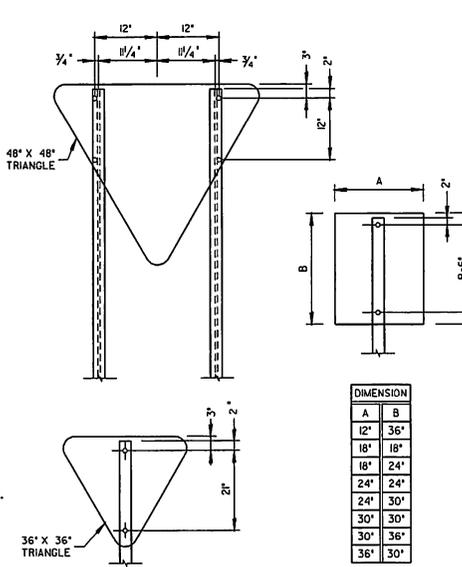


NOTE: THE COST OF HORIZONTAL MEMBERS TO BE INCLUDED IN OTHER ITEMS.

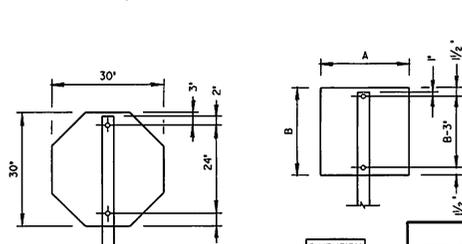
NOTE: SECONDARY SIGN WHEN REQUIRED, SEE SIGN SCHEDULE.



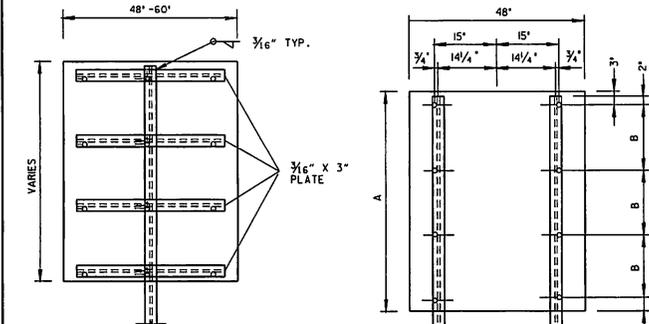
DIMENSION	
A	B
30'	15'
36'	18'



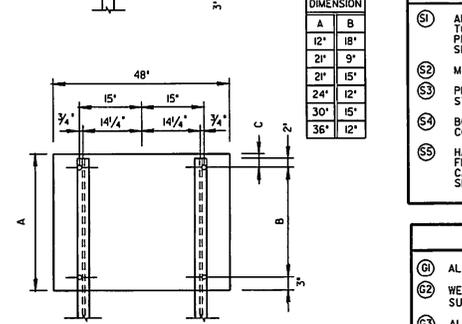
DIMENSION	
A	B
12'	36'
18'	18'
18'	24'
24'	24'
24'	30'
30'	30'
30'	36'
36'	30'



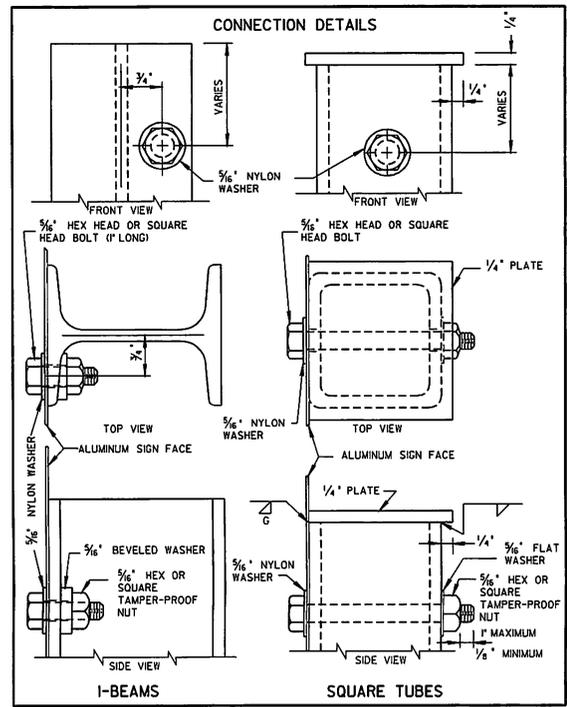
DIMENSION	
A	B
12'	18'
21'	9'
21'	15'
24'	12'
30'	15'
36'	12'



DIMENSION	
A	B
60'	18'
78'	24'
96'	22 1/2'



DIMENSION		
A	B	C
24'	18'	3'
36'	24'	6'



- ### STEEL MATERIAL NOTES
- (S1) ALL STEEL SHALL BE GALVANIZED AFTER FABRICATION CONFORMING TO THE REQUIREMENTS OF ASTM A23 OR THE ELECTRO-GALVANIZED PROCESS. DAMAGE TO THE COATING SHALL BE REPAIRED SUBSEQUENT TO ERECTION.
 - (S2) MATERIAL FOR TUBES SHALL BE ASTM A500, GRADE B.
 - (S3) PLATES SHALL BE IN ACCORDANCE WITH ASTM A36 OR ASTM A242 STEEL.
 - (S4) BOLTS, NUTS AND WASHERS SHALL BE MADE OF MATERIAL CONFORMING TO ASTM A307.
 - (S5) HARDWARE SHALL BE GALVANIZED CONFORMING TO ASTM A153 OR FEDERAL SPECIFICATION DD-2-325-B, TYPE I, CLASS 3 OR CADMIUM PLATED TO CONFORM TO ASTM A-165 OR FEDERAL SPECIFICATION QQ-P-416, TYPE III, CLASS 3.

- ### ALUMINUM MATERIAL NOTES
- (A1) MATERIAL FOR TUBES SHALL BE ASTM B-221, ALLOY 6061-T6.
 - (A2) FLAT SHEETS AND PLATES SHALL BE IN ACCORDANCE WITH ASTM B-209, ALLOY 6061-T6 OR 5052-H38.
 - (A3) BOLTS SHALL BE MADE FROM MATERIAL CONFORMING TO ASTM B-211, ALLOY 2024-T4.
 - (A4) MATERIAL FOR NUTS TO BE ASTM B-211, ALLOY 6262-T9.
 - (A5) MATERIAL FOR WASHERS TO BE ASTM B-209, ALLOY ALLCLAD 2024-T4.
 - (A6) MATERIAL FOR WELD FILLER WIRE TO BE ASTM B-285, ALLOY ER 5356, ER 5556 OR ER 5183.
 - (A7) ALL BOLTS AND NUTS SHALL HAVE AN ANODIC COATING OF 0.0002 INCH MINIMUM THICKNESS WITH DICROMATE OR BOILING WATER SEAL.

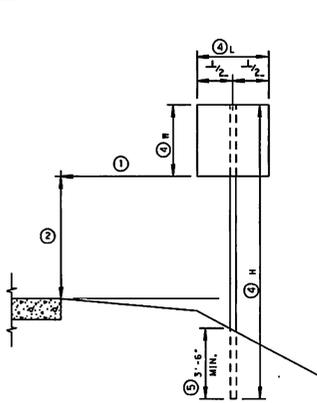
- ### GENERAL NOTES
- (G1) ALL HOLES SHALL BE 3/8" IN DIAMETER.
 - (G2) WELDING SHALL BE DONE IN ACCORDANCE WITH ASSHTO STANDARD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS (CURRENT EDITION.)
 - (G3) ALL BOLTS AND NUTS SHALL BE COATED WITH A SUITABLE LUBRICANT. STAINLESS STEEL BOLTS, NUT AND WASHERS MAY BE SUBSTITUTED.
 - (G4) IF A RECTANGULAR SIGN WIDER THAN 48" MUST BE MOUNTED ON A SIGNAL POST, 3/16" X 3" STEEL PLATE SIGN STIFFENERS ARE REQUIRED. THE COST OF STIFFENERS SHALL BE INCLUDED IN THE COST OF THE SIGN.
 - (G5) STIFFENERS ARE TO BE PLACED AT A MAXIMUM SPACING OF 1'-0", NO FURTHER THAN 9" FROM THE TOP AND BOTTOM OF THE SIGN AND THE STIFFENERS SHALL EXTEND TO WITHIN 3" FROM THE LEFT AND RIGHT EDGE OF THE SIGN.

- REV. 6-8-74 NOTE ADDED TO GENERAL NOTES.
- REV. 7-1-72 CHANGE DRAWING NO. FROM RD-S-12 TO T-S-12.
- REV. 1-1-76: CHANGED DEPARTMENT NO. FROM RD-S-12 TO T-S-12.
- REV. 7-29-76: GENERAL REVISIONS.
- REV. 4-8-77: ALUMINUM FLAT SHEETS AND PLATES.
- REV. 10-24-79: LOCKNUTS REQUIRED.
- REV. 12-12-83: CHANGED ROUND HEAD MACHINED SCREW TO HEX HEAD BOLT AND CORRECTED ALL DIMENSIONS AS NEEDED.
- REV. 12-7-90: REDREW AND REORGANIZED SHEET. CHANGED SHEET NO. FROM T-S-12 TO T-S-10.
- REV. 5-21-03: CORRECTED GENERAL NOTE (G5).
- REV. 2-21-03: ADDED GENERAL NOTES (G4) AND (G5).
- REV. 4-4-12: ADDED SIGN STIFFENER DETAIL.

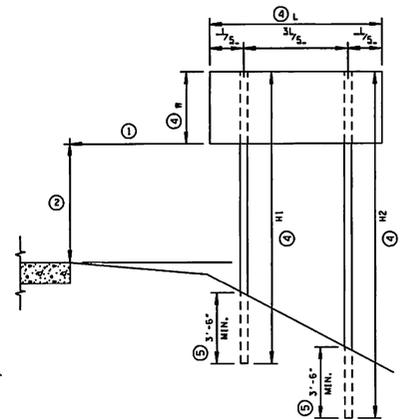
MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

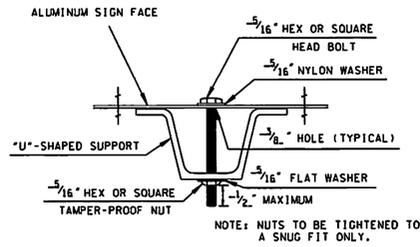
STANDARD MOUNTING
DETAILS
FLAT SHEET SIGNS
ALUMINUM-STEEL
DESIGN



SHOULDER INSTALLATION FOR ONE "U" POST SUPPORT



SHOULDER INSTALLATION FOR TWO "U" POST SUPPORTS



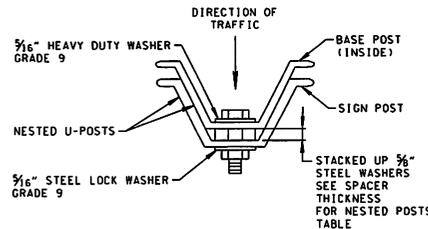
CONNECTION DETAIL FOR "U" POST

SINGLE-DIRECTIONAL BREAKAWAY LAP SPLICE

LEGEND

W-HEIGHT OF SIGN FACE
L-LENGTH OF SIGN FACE
H-HEIGHT OF SIGN SUPPORT

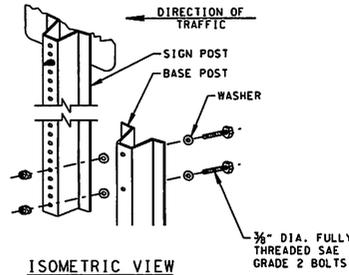
- FOOTNOTES**
- FOR STANDARDIZATION OF LOCATION AND LATERAL CLEARANCE SEE SUBSECTIONS 2A-16 AND 2A-19 OF THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
 - FOR HEIGHT SEE SUBSECTION 2A-18 OF THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
 - FOR LATERAL CLEARANCE OF CROSSBUCK SIGN SEE SUBSECTION 2A-19 OF THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
 - SEE SIGN SCHEDULE SHEET IN THE PLANS FOR DIMENSIONS L, H, H1, H2, H3 AND H.
 - IF ROCK IS ENCOUNTERED DURING THE INSTALLATION OF SUPPORT POSTS, THE HOLES FOR THE SUPPORTS SHALL BE DRILLED TO PROVIDE THE MINIMUM 3'-6" DEPTH IN GROUND.
 - SEE TDOT SPECIAL PROVISION 713A REGARDING SPECIFICATIONS FOR HIGH GRADE REFLECTIVE SHEETING.
 - TO BE PAID FOR UNDER ITEM NO. 713-16.20 THRU 39.



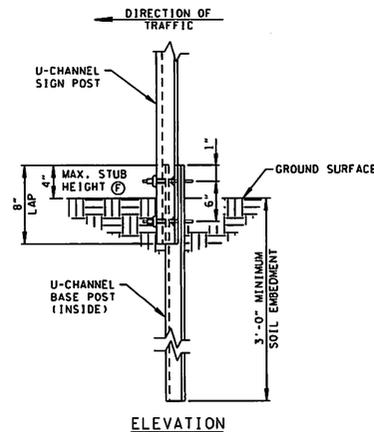
SECTION (THRU BREAKAWAY SPLICE)

SPACER THICKNESS FOR NESTED POSTS

POST SIZE (LB/FT)	THICKNESS (INCHES)
2.00	3/8
2.50	3/16
2.75	1/4
3.00	5/8
4.00	1/2



ISOMETRIC VIEW



ELEVATION

- REV. 11-1-11: REVISED GENERAL NOTES ① AND ②. ADDED GENERAL NOTE ③. CHANGED R-15-2 SIGNS TO R15-2P.
- REV. 6-5-14: COMBINED T-5-16 AND T-5-16A.
- REV. 7-2-15: ADDED SINGLE DIRECTIONAL BREAKAWAY LAP SPLICE. ADDED FOOTNOTES ④.

REV. T-1-T2: CHANGED DEPARTMENT NAME.

REV. 7-26-75: CORRECT VERTICAL AND LATERAL CLEARANCES AND RAILROAD CROSSBUCK SIGN TO AGREE WITH 1971 MUTCO. ELIMINATED USE OF WOOD POST SUPPORTS AND CHANGEABLE NUMERAL DETAIL.

REV. 8-24-75: BREAKAWAY ADDED TO SQUARE TUBE POST DESCRIPTION. REFERENCE ARROWS ADDED FROM R15-2 TO THE APPROPRIATE SIGNS.

REV. 2-21-74: PAY ITEM AND NOTE ADDED REGARDING RAILROAD CROSSBUCK SIGN AND SUPPORT.

REV. 1-1-76: CHANGED DWG. NO. FROM RD-5-16 (88) TO T-5-16.

REV. 3-5-76: DELETED REFERENCE TO OLD DWG. NO. SUBSTITUTED NEW DWG. NO.

REV. 2-25-77: THE WORD "STEEL" ELIMINATED FROM U-POST.

REV. 10-24-79: U-POST CONNECTION DETAIL REVISED.

REV. 12-12-83: CONNECTION DETAIL U-POST CHANGED.

REV. 5-28-84: CONNECTION DETAIL U-POST AND RAILROAD CROSSBUCK SIGN AND SUPPORT CHANGED.

REV. 10-3-84: ADDED TAMPER PROOF NUT TO CONNECTION DETAIL U-POST.

REV. 2-12-85: ADDED POP-RIVET ALTERNATE TO U-POST CONNECTION DETAIL.

REV. 4-10-86: ADDED REFERENCE TO SECTION 2A-21 OF MUTCO.

REV. 7-8-86: REDREW SHEET. DELETED POP-RIVET ALTERNATE. ADDED NOTES.

REV. 10-15-90: REDREW AND REDORGANIZED SHEET. CHANGED MINIMUM DEPTH OF "U" POST IN GROUND FROM 3'-0" TO 3'-6".

REV. 1-16-94: ELIMINATED SHOULDER INSTALLATION USING THREE SUPPORTS.

REV. 2-12-94: CORRECTED FOOTNOTE NUMBERS IN BOTH SHOULDER INSTALLATION DETAILS.

REV. 7-29-90: CHANGED UT POST TO PB POST IN RAILROAD CROSSBUCK SIGN AND SUPPORT DETAIL.

REV. 7-29-96: CHANGED MATERIAL ON CROSSBUCK AND TRACK NUMBER SIGN. ADDED WHITE RETROREFLECTIVE STOP TO CROSSBUCK SUPPORT.

REV. 1-19-99: ADDED FOOTNOTE ⑤.

REV. 5-27-01: CHANGED DESCRIPTION IN ITEM NO. 713-16.05.

REV. 7-29-04: IN RAILROAD CROSSBUCK SIGN AND SUPPORT DETAIL MOVED 18" DIMENSION LINE.

REV. 10-23-05: ADDED GENERAL NOTE ⑥ AND TRACK ID PLATE.

REV. 11-1-11: ADDED RAILROAD ADVANCE WARNING SIGN DETAIL.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

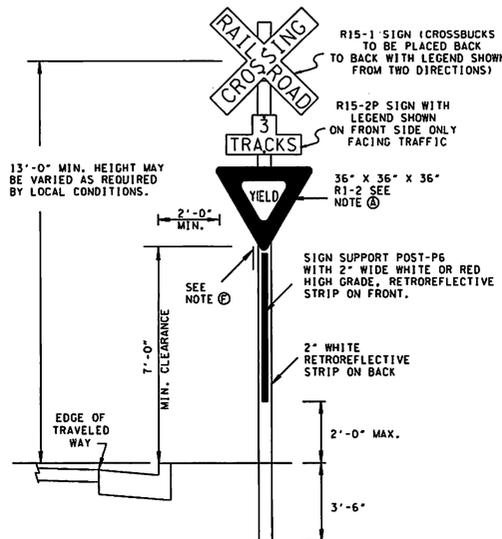
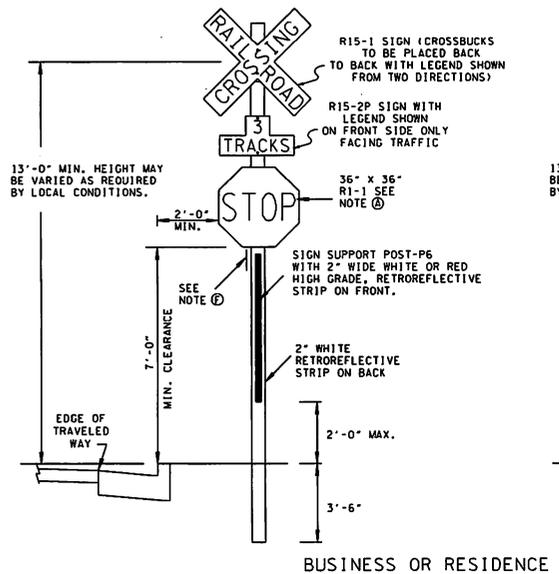
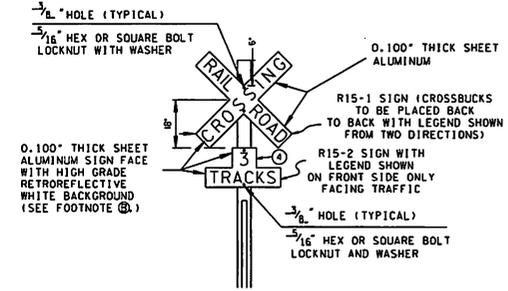
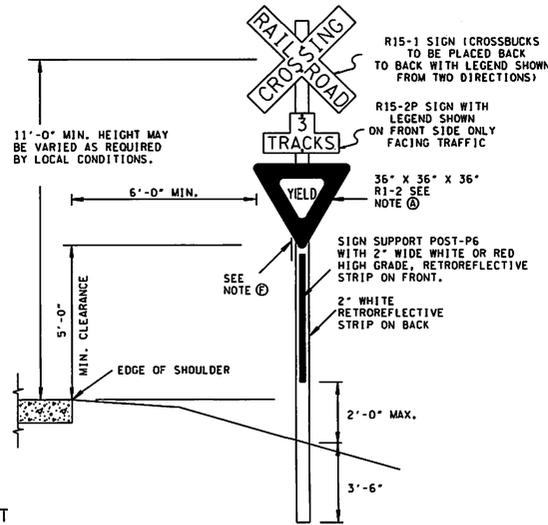
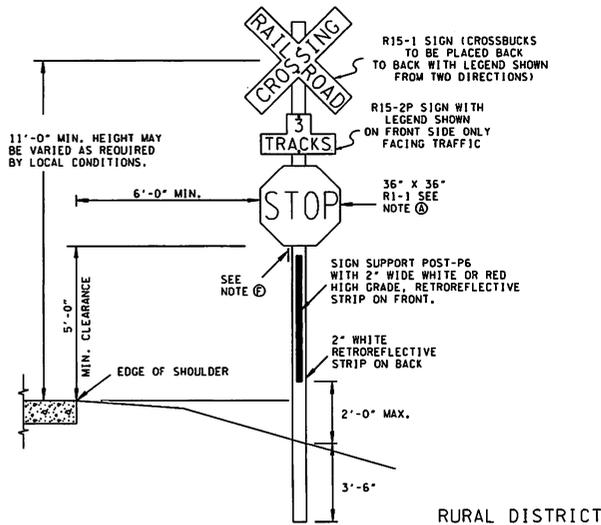
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
GROUND MOUNTED
ROADSIDE
SIGN PLACEMENT
DETAILS

T-5-16

STOP OR YIELD SIGN ON SAME POST WITH THE CROSSBUCK SIGN AT PASSIVE HIGHWAY-RAIL GRADE CROSSINGS

REV. 11-1-11: REVISED GENERAL NOTES (A) AND (B). ADDED GENERAL NOTE (C) CHANGED R-15-2 SIGNS TO R15-2P.

REV. 7-2-15: ADDED DETAILS. ADDED GENERAL NOTES (D).



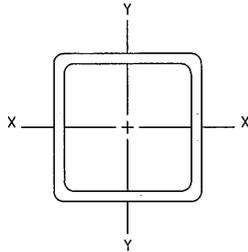
GENERAL NOTES

- (A) YIELD SIGNS SHALL BE THE DEFAULT SIGN AND SHALL BE USED UNLESS AN ENGINEERING STUDY DETERMINES THAT A STOP SIGN IS REQUIRED. IF A STOP SIGN IS REQUIRED, 36" X 36" STOP AHEAD (W3-1) SHALL BE PLACED IN ADVANCE OF THE RAILROAD SIGN (W10-1) ACCORDING TO SECTION 2C.05 AND TABLE 2C-4 IN THE MUTCD. FOR SINGLE LANE CONVENTIONAL ROADS USE 36"X36"X36" YIELD SIGN. FOR MULTI-LANE CONVENTIONAL ROADS USE 48"X48"X48" YIELD SIGN FOR ADDITIONAL INFORMATION FOR STOP AND YIELD SIGN SIZES, SEE TABLE 8B-1 OF THE MUTCD.
- (B) ONLY REFLECTIVE SHEETING ON THE QUALIFIED PRODUCT LIST (10A) SHALL BE USED.
- (C) RAILROAD CROSS-BUCK SIGN AND SUPPORT, YIELD/STOP SIGN, NUMBER OF TRACKS AUXILIARY SIGN, AND TRACK ID PLATE IS TO BE PAID FOR UNDER ITEM NO. 713-16.05. RAILROAD CROSS-BUCK SIGN AND SUPPORT PER EACH. THIS PAY ITEM SHALL INCLUDE THE FURNISHING AND INSTALLING OF THE SIGNS, SUPPORT AND HARDWARE.
- (D) LOCATION OF THE CROSSBUCK SIGN AND SUPPORT WITH RESPECT TO THE CENTERLINE OF THE NEAREST TRACK SHALL BE IN ACCORDANCE WITH THE TYPICAL LOCATION PLAN FOR FLASHING LIGHT SIGNAL LOCATIONS AS SHOWN ON FIGURE 8C-2 OF THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). SEE SECTION 8C.06 OF THE MUTCD FOR ADDITIONAL INFORMATION.
- (E) IF AN EXISTING CROSSBUCK SIGN AND SUPPORT IS TO BE REMOVED, THE CONTRACTOR SHALL REMOVE AND INSTALL THE EXISTING AAR NUMBER PLATE ON THE PROPOSED CROSSBUCK SIGN. ALL COST ARE TO BE INCLUDED IN THE PRICE BID FOR ITEM NO. 713-16.05.
- (F) TRACK ID PLATE TO BE MOUNTED ON LEFT SIDE FACING TRACK.
- (G) SEE FIGURE 8B-2 AND SECTION 8B.04 OF THE MUTCD FOR ADDITIONAL INFORMATION FOR PASSIVE GRADE CROSSINGS.
- (H) IF THERE ARE TWO OR MORE TRACKS, INCLUDING SIDINGS, THE NUMBER OF TRACKS SHALL BE INDICATED ON AN AUXILIARY SIGN OF INVERTED T-SHARE IS MOUNTED BELOW THE CROSSBUCK.
- (I) IF ROCK IS ENCOUNTERED DURING THE INSTALLATION OF SUPPORT POSTS, THE HOLES FOR THE SUPPORTS SHALL BE DRILLED TO PROVIDE THE MINIMUM 3'-6" DEPTH IN GROUND.
- (J) SEE T-5-16 FOR LAP SPICE DETAILS.
- (K) TO BE PAID UNDER ITEM NO. 713-16.20 THRU 39.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
GROUND MOUNTED
ROADSIDE
SIGN PLACEMENT
DETAILS

T-S-16A



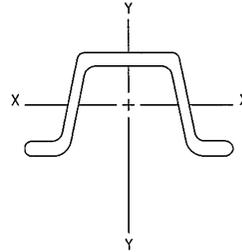
PERFORATED / KNOCKOUT SQUARE TUBE
 MATERIAL: ASTM A-446 (GRADE A) OR A-1011 GRADE 50
 $F_y = 60,000$ PSI MIN.

STEEL "U"-POST SHALL BE MANUFACTURED FROM STEEL CONFORMING TO THE MATERIAL REQUIREMENTS OF ASTM A-499 AND GALVANIZED CONFORMING TO ASTM A-123.

PERFORATED/KNOCKOUT POSTS SHALL BE SQUARE TUBE FORMED 10 OR 12 GAUGE, ASTM A1011 GRADE 50 STEEL. THE SQUARE TUBES SHALL BE WELDED DIRECTLY IN THE CORNER BY HIGH FREQUENCY RESISTANCE WELDING OR EQUAL. THE POSTS SHALL BE EXTERNALLY SCARFED TO AGREE WITH STANDARD CORNER RADIUS OF $\frac{3}{16}$ INCHES.

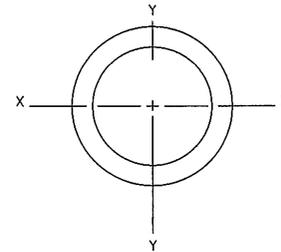
PERFORATED/KNOCKOUT POSTS SHALL BE SQUARE TUBE FORMED FROM USS GAGE (12 GAGE) ASTM A-446 COLD ROLLED CARBON STEEL OR A-1011 HOT ROLLED CARBON SHEET STEEL. THE MINIMUM YIELD (F_y) IS TO BE 60,000 POUNDS PER SQUARE INCH, OR USS 14 GAGE HAVING A MINIMUM YIELD STRENGTH OF 60,000 POUNDS PER INCH. THE SQUARE TUBES SHALL BE WELDED DIRECTLY IN THE CORNERS BY HIGH FREQUENCY RESISTANCE WELDING OR EQUAL. THE SUPPORT POSTS ARE TO BE EXTERNALLY SCARFED TO AGREE WITH STANDARD CORNER RADIUS OF $\frac{3}{16}$ INCHES.

PERFORATED/KNOCKOUT POSTS SHALL BE GALVANIZED TO CONFORM TO ASTM-525, DESIGNATION C-90 OR ITS CORROSION-RESISTANCE EQUIVALENT, WHEN TESTED IN ACCORDANCE WITH ASTM B-117 STANDARDS.
 (TO BE PAID UNDER ITEM NO. 713-11.02)



U-POST

MATERIAL: ASTM A-499 GRADE 50
 $F_y = 50,000$ PSI MIN.
 (TO BE PAID UNDER ITEM NO. 713-11.01)



ROUND POST

MATERIAL: ASTM A-500 GRADE C
 $F_y = 50,000$ PSI MIN.
 SCHEDULE 80

ONLY SYSTEMS LISTED ON THE T00T OPL SHALL BE USED.

BWG 10 SCHEDULE 80 PIPE SPECIFICATIONS (SIGN POST):

2.875" OUTSIDE DIAMETER
 0.275" NOMINAL WALL THICKNESS
 STEEL TUBING PER ASTM A500 GRADE C
 OTHER SEAMLESS OR ELECTRIC-RESISTANCE WELDED STEEL TUBING OR PIPE WITH EQUIV. OUTSIDE DIA. AND WALL THICKNESS MAY BE USED IF THEY MEET THE FOLLOWING:
 46,000 PSI MINIMUM YIELD STRENGTH, 62,000 PSI MINIMUM TENSILE STRENGTH
 WALL THICKNESS (UNCOATED) SHALL BE WITHIN THE RANGE OF 0.248" TO 0.304"
 OUTSIDE DIAMETER (UNCOATED) SHALL BE WITHIN THE RANGE OF 2.855" TO 2.895"
 GALVANIZATION PER ASTM A123

(TO BE PAID UNDER ITEM NO. 713-11.03)

REV. 06-01-76: ADDED WEIGHTS.
 REV. 08-13-76: REVISED WEIGHTS ALUMINUM.

REV. 08-22-77: ADDED "R1" POST; REVISED PROPERTIES OF RIBBED "U"-POST.

REV. 07-01-78: REQUIREMENTS OF MATERIAL FOR STEEL "U"-POST.

REV. 03-01-88: KNOCKOUT ALTERNATE ADDED.

REV. 10-26-90: REDREW AND REORGANIZED SHEET, DELETED ALUMINUM "U"-POST AND "R1"-POST FROM SHEET, CHANGED SHEET NAME ACCORDINGLY, NUMBERED FOOTNOTES AND ADDED FOOTNOTE NO. ②.

REV. 7-29-91: ADDED P7 AND P8 PERFORATED/KNOCKOUT TUBE POST. ADDED FOOTNOTE NOS. ③ AND ④.

REV. 7-19-15: F_y FOR 12 GAUGE P POST CHANGED TO 60K PSI. ADDED P9 POST REVISED FOOTNOTES. CHANGED TITLE, ADDED ROUND POST INFORMATION.

REV. 7-11-11: REMOVED OLD FOOT NOTES FROM P5 AND P9

MEMBER DESIGNATION	MINIMUM SECTION PROPERTIES	WT LBS/FT
P1	A = 0.380 IN ² S _{xx} = 0.132 IN ³ I _{xx} = 0.129 IN ⁴	1.102 1 1/2" Ø
P2	A = 0.485 IN ² S _{xx} = 0.268 IN ³ I _{xx} = 0.231 IN ⁴	2.060 1 1/2" Ø
P3	A = 0.590 IN ² S _{xx} = 0.312 IN ³ I _{xx} = 0.312 IN ⁴	2.416 2" Ø
P4	A = 0.695 IN ² S _{xx} = 0.499 IN ³ I _{xx} = 0.561 IN ⁴	2.773 2 1/2" Ø
P5	A = 0.803 IN ² S _{xx} = 0.643 IN ³ I _{xx} = 0.804 IN ⁴	3.141 2 1/2" Ø
P6	A = 1.010 IN ² S _{xx} = 0.783 IN ³ I _{xx} = 0.979 IN ⁴	4.006 2 1/2" Ø
P7	A = 0.392 IN ² S _{xx} = 0.230 IN ³ I _{xx} = 0.201 IN ⁴	1.882 1 3/4" Ø
P8	A = 0.474 IN ² S _{xx} = 0.296 IN ³ I _{xx} = 0.296 IN ⁴	2.164 2" Ø
P9	A = 0.841 IN ² S _{xx} = 0.533 IN ³ I _{xx} = 0.605 IN ⁴	3.430 2 3/16" Ø

MEMBER DESIGNATION	MINIMUM SECTION PROPERTIES	WT LBS/FT
U1	A = 0.590 IN ² S _{xx} = 0.225 IN ³ I _{xx} = 0.119 IN ⁴	2.00
U2	A = 0.645 IN ² S _{xx} = 0.254 IN ³ I _{xx} = 0.201 IN ⁴	2.25
U3	A = 0.748 IN ² S _{xx} = 0.289 IN ³ I _{xx} = 0.233 IN ⁴	2.50
U4	A = 0.819 IN ² S _{xx} = 0.329 IN ³ I _{xx} = 0.277 IN ⁴	2.75
U5	A = 0.812 IN ² S _{xx} = 0.363 IN ³ I _{xx} = 0.331 IN ⁴	2.75
U6	A = 0.918 IN ² S _{xx} = 0.403 IN ³ I _{xx} = 0.372 IN ⁴	3.00
U7	A = 1.195 IN ² S _{xx} = 0.511 IN ³ I _{xx} = 0.460 IN ⁴	4.00

MEMBER DESIGNATION	MINIMUM SECTION PROPERTIES	WT LBS/FT
R1 2 1/2" Ø	A = 1.154 IN ² S _{xx} = 0.754 IN ³ I _{xx} = 1.08 IN ⁴	3.92

FOOTNOTES

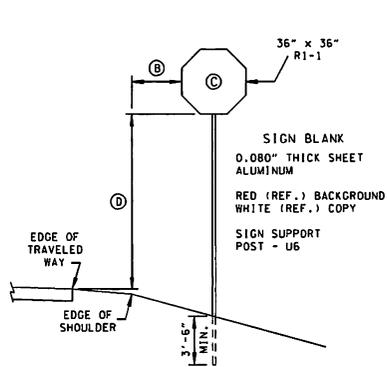
- SEE GENERAL NOTES ④ AND ⑤ ON STANDARD DRAWING T-S-17 FOR MANUFACTURING REQUIREMENTS FOR STEEL AND GALVANIZING.
- STEEL "U"-POST SHALL BE MANUFACTURED FROM STEEL CONFORMING TO THE MATERIAL REQUIREMENTS OF ASTM A-499 AND GALVANIZED CONFORMING TO ASTM A-123.
- P1 THRU P5 MEMBER DESIGNATIONS ARE TO BE 12 GAGE.
- THE CONTRACTOR MAY SUBSTITUTE P2 FOR P7 AND P3 FOR P8. QUANTITIES ARE COMPUTED ON PLANS BASED ON USING P7 OR P8. NO INCREASE IN QUANTITIES WILL BE ALLOWED WHEN USING THE ABOVE SUBSTITUTIONS.
- P7, P8 AND P9 MEMBER DESIGNATIONS ARE TO BE 14 GAGE.
- P6 IS TO BE 10 GAUGE.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

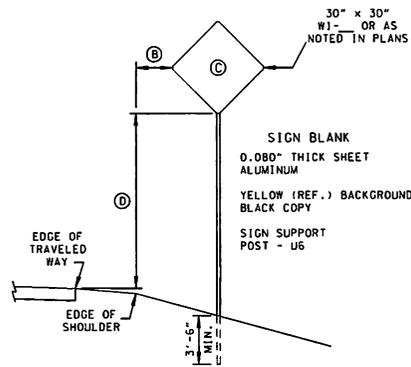
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

STANDARD STEEL
 SIGN
 SUPPORTS

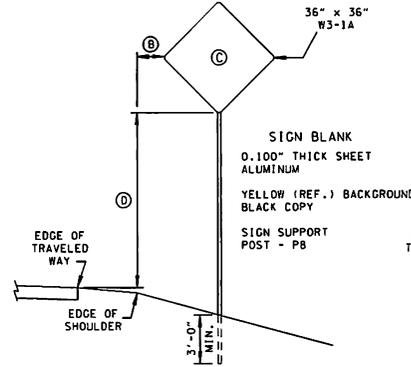
T-S-19



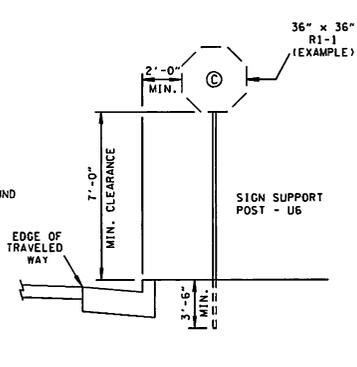
STOP SIGN
DETAIL
SEE NOTE (A) (E)



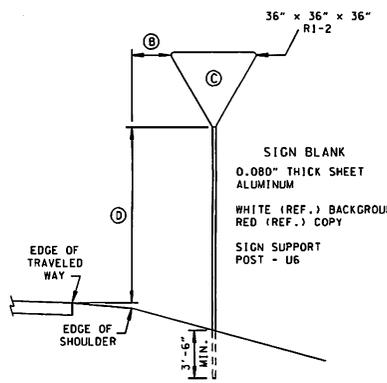
30" x 30" DIAMOND SIGN
DETAIL
SEE NOTE (A) (E)



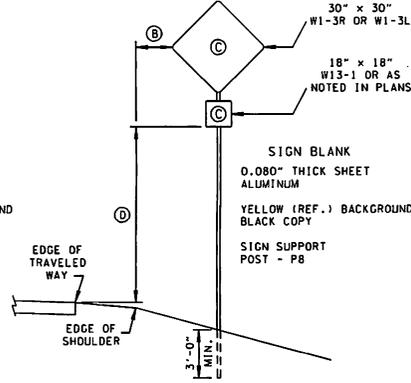
36" x 36" DIAMOND SIGN
DETAIL
SEE NOTE (A)



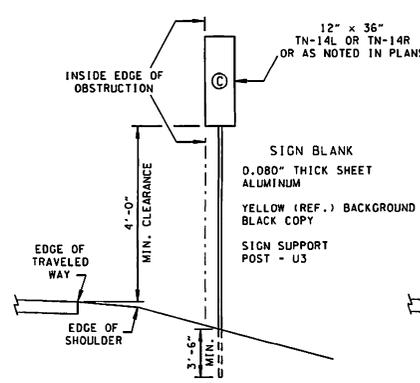
TYPICAL CURB & GUTTER SECTION
SIGN DETAIL



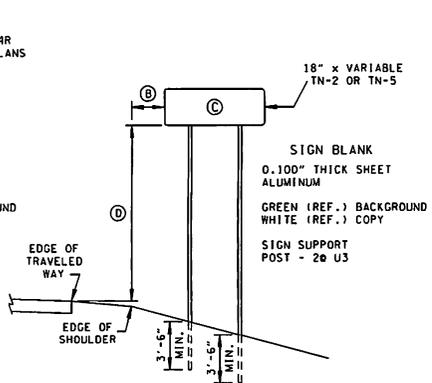
YIELD SIGN
DETAIL
SEE NOTE (A) (E)



30" x 30" DIAMOND SIGN WITH
SUPPLEMENTAL PLATE DETAIL
SEE NOTE (A) (E)



OBJECT MARKER
SIGN DETAIL
SEE NOTE (A)



STREAM OR COUNTY LINE
SIGN DETAIL
SEE NOTE (A)

- REV. 10-15-90: CHANGED MINIMUM DEPTH OF "U" POST IN GROUND FROM 3'-0" TO 3'-6". ADDED GENERAL NOTE REGARDING SILK SCREENING.
- REV. 7-29-92: CHANGED U7 POST TO P8 POST IN VARIOUS DETAILS.
- REV. 7-29-96: CHANGED DEPTH OF EMBEDMENT OF POST FOR DIAMOND SIGNS.
- REV. 12-18-97: CHANGED GENERAL NOTE (A) REGARDING PAY ITEM NUMBERS.
- REV. 5-27-01: CHANGED GENERAL NOTE (A).
- REV. 11-1-11: REVISED GENERAL NOTES (A), (C), AND (E). ADDED GENERAL NOTE (D).
- REV. 7-11-17: CHANGED DIMENSION OF STOP SIGN DETAIL AND TYPICAL CURB & GUTTER SECTIONAL SIGN DETAIL TO 36" x 36".

GENERAL NOTES

- (A) SIGN FACE, SUPPORT, INSTALLATION, AND HARDWARE INCLUDED IN ITEM NOS. 713-16.20 THROUGH 713-16.29 SIGNS (DESCRIPTION) PER EACH.
- (B) 6'-0" DESIRABLE FROM EDGE OF SHOULDER, OR IF NONE, 12'-0" DESIRABLE FROM EDGE OF TRAVELED WAY (SEE CURRENT EDITION MUTCD SECTIONS 2A.19 THROUGH 2A.21). 4'-0" DESIRABLE FROM FACE OF GUARDRAIL.
- (C) LETTERS, BORDERS, AND ALPHABET ACCESSORIES SHALL BE APPLIED BY SILK SCREENING PROCESS. SEE SECTIONS 2A.06 THROUGH 2A.15 OF THE MUTCD FOR ADDITIONAL INFORMATION.
- (D) THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVEMENT, OF SIGNS INSTALLED AT THE SIDE OF THE ROAD IN RURAL AREAS SHALL BE 5 FEET. THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB, OR IN THE ABSENCE OF CURB, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE TRAVELED WAY, OF SIGNS INSTALLED AT THE SIDE OF THE ROAD IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREAS WHERE PARKING OR PEDESTRIAN MOVEMENTS ARE LIKELY TO OCCUR, WHERE THE VIEW OF THE SIGN MIGHT BE OBSTRUCTED, SHALL BE 7 FEET. THE HEIGHT TO THE BOTTOM OF A SECONDARY SIGN MOUNTED BELOW ANOTHER SIGN MAY BE 1 FOOT LESS THAN THE APPROPRIATE HEIGHT SPECIFIED ABOVE. SEE FIGURE 2A-2 AND SECTION 2A.18 OF THE MUTCD FOR ADDITIONAL INFORMATION.
- (E) FOR MULTI-LANE CONVENTIONAL ROADS USE 48"x48"x48" YIELD SIGN AND USE 36"x36"x36" W1 SIGN. FOR ADDITIONAL INFORMATION FOR STOP AND YIELD SIGN SIZES, SEE TABLE 2B-1 AND TABLE 2C-2 OF THE MUTCD.

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SIGN
DETAILS
NOT TO SCALE

T-29-96 T-S-20

